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SURVEY OF THE EVIDENCE AND FINDINGS ON MERGERS

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ONE authority has classified the literature on trusts, mergers, and consolidations according to the conclusions reached by various writers on the subject. His classification can be broadly summarized as follows:

1. Combinations reflect the desire and the ability of captains of industry to suppress competition. While proponents of this point of view unanimously agree that combinations are socially undesirable, they disagree on how long the undesirable effects last. Some hold that the creation of monopolies is, just as the socialists have long predicted, a final stage in the evolution of capitalism; hence monopoly will persist so long as capitalism survives. However, others hold that with the creation of each large combination go the seeds of its own destruction. This school argues that no man or group of men can long maintain control over the output of a commodity because of the inevitable supremacy of the laws of competition.

2. Combinations are not all-pervasive but arise only in those areas where control over transportation facilities and limited supplies of raw materials can be easily obtained, or where unwisely conceived legislation bestows monopoly power through tariff and patent protection and other means. Supporters of this view find an easy remedy to the combination problem in rigorous legal prohibitions and a reform of existing abuses.

3. Combinations are not a product of industry at all but of banking. To acquire control over all the assets in an industry requires far more liquid capital than any single manufacturing firm possesses. Hence the concentration of financial resources in large investment banks creates the "money trust" that is the mother of all others.

4. Combinations arise out of the chaos and wastefulness of small-scale enterprise and are merely a part of an evolutionary process in which the efficient survive and the inefficient are either absorbed or fall behind in the race toward lower production and distribution costs. Proponents of this view argue that "modern industrial conditions have demanded" that the "principle of combination be generally accepted."

5. Combinations represent the greatest invention and benefaction of this age or almost any other. Those who hold opposing views are "socialists, demagogues, blackmailers" and the like.

6. Mergers and combinations are legal, not social problems. Those who have reached this conclusion are primarily concerned with the problem of whether or not particular combinations are legal according to the antitrust laws.

The most observant student of the literature on mergers might easily conclude that this classification of schools of thought appeared in some recently published textbook on industrial organization—perhaps as recently as 1952. Actually it appeared in an article in 1901.[1] In the meantime the frequency distribution of views on the economic and social significance of mergers with respect to these classes has no doubt changed, but the range has not been significantly reduced—the extremes are still expressed. For example, a report of the House Judiciary Committee stated as recently as 1947, "The history of legislation previously adopted to prevent monopoly, the great increase in recent years of competition-destroying mergers, the damage to small business, the blighting of opportunity for our young people—all cry out for the enactment of legislation to stop the rising tide of monopoly."[2] In its 1948 report on mergers, the Federal Trade Commission sounded a similar note of alarm: "No great stretch of the imagination is required to foresee that if nothing is done to check the growth in concentration, either the giant corporations will ultimately take over the country, or the Government will be impelled to step in. . . ."[3] On the other hand, recent textbooks on business finance indicate a widely-held view that mergers have come about largely to reduce the cost of production, distribution, administration, etc.; and where the authors of such texts pass judgment on the social significance of mergers, the reader is frequently more impressed with their desirable than with their undesirable consequences.

There is no simple explanation for this persistence of divergent schools of thought. Admittedly, as it will be shown later, the available data on mergers are far from complete. In the face of incomplete data, economists might be expected to behave a little like the six blind men of Indostan and develop entirely different apperceptions

[1] Charles J. Bullock, "Trust Literature: A Survey and Criticism," *Quarterly Journal of Economics*, February 1901, pp. 167-216.

[2] H. Rep. 596, 80th Cong., 1st Sess. amending Secs. 7 and 11 of Clayton Act, June 17, 1947.

[3] *The Merger Movement, A Summary Report*, Federal Trade Commission, 1948, p. 68.

tions about something big—whether it be elephants or mergers. The data, however, are not so faulty as this. The principal causes of divergent conclusions on mergers lie elsewhere. High on the list among these appears to be the willingness to accept, without fully testing it, a single simple explanation for why firms merge. Mergers, however, are not monolithic in character. Some have been born of monopoly and have been socially undesirable; others have been an integral part of competitive adjustment and may have been highly desirable; still others have had no recognizable effect on either industrial structure, market behavior, or anything else outside the particular firms involved. If this point, unspectacular though it may be, can be clearly demonstrated through an appraisal of the known data, this essay will have served its principal purpose.

1. *Some Fundamental Shortcomings in Research on Mergers*

ALTHOUGH some merger operations can be squeezed into theoretical maximizing models, the paths of economic theory and merger literature have rarely crossed.[4] Its nontheoretical nature hardly distinguishes the literature on mergers from that on many other economic phenomena. Nevertheless it has probably accounted for considerable disorganization of research efforts. Researchers, having no set of hypotheses as a point of departure, have relied principally upon the arts of description and enumeration. Accordingly, the vast body of merger literature shows the lack of cohesive purpose that may have followed from empirical testings of merger theory.

It is probably for this reason that mergers have been associated so closely with the monopoly problem. In fact, early authorities defined mergers to include only those combinations of formerly independent firms that resulted in substantial increases in market control.[5] In this area at least, economists had available some fairly crude tools of analysis and a long-standing observation on merger as a means of monopoly growth. Adam Smith as long ago as 1776 had observed the businessman's propensity to turn convivial conversations into trade conspiracies. Obviously, one way for businessmen to conspire is to merge their respective firms. In truth, the early pools and trusts might

[4] For two of the few discussions of mergers and theory see George J. Stigler, "Monopoly and Oligopoly by Merger," *American Economic Review*, Supplement, May 1950, pp. 23-34, and his "The Division of Labor is Limited by the Extent of the Market," *Journal of Political Economy*, June 1951, pp. 185-193, especially pp. 190-191.

[5] Shaw Livermore, "The Success of Industrial Mergers," *Quarterly Journal of Economics*, November 1935, pp. 70-71; and H. R. Seager and C. A. Gulick, Jr., *Trust and Corporation Problems* (Harper, 1929), p. 1.

be conveniently viewed as conspiracies par excellence. More recently, Adam Smith's observation has been formalized into price models giving a rationale for the merger, combination, or association of firms. Nearly every elementary textbook contains tools of analysis which may be used to show how a combination of all firms in a previously competitive industry can, at least in the short run, give rise to monopoly profits, higher prices, and a reduced rate of output.

Trusts and combinations formed before 1894, such as the sugar, oil, tobacco, cordage, linseed oil, cotton oil, whisky, and lead trusts, as well as some of the later mergers, clearly were instruments of market control. They therefore conform to the Smithian rationale. It is equally clear, however, from a priori reasoning and the available data, that this rationale explains only a small part of the merging process. Merger, as ordinarily defined, reflects the operation of many economic forces and, correspondingly, gives rise to almost any number of end results.

A second shortcoming of research on mergers arises from definitional problems and biases. It is evident of course that the composition and size of any list of mergers depend upon the definition of merger adopted. Thus the Twelfth Census, by using a rather restricted definition, recorded the formation of only 170 mergers between 1890 and 1900. By combining lists based on several definitions, Shaw Livermore compiled a master list for the same period comprising 231 mergers.[6] The difference between the two lists is 61 mergers, or 36 per cent of the total number included on the smaller list.

Moreover, nearly all the tabulations of early mergers were based primarily upon those mergers which, in the eyes of the researchers, loomed large in the world of business;[7] and none of them includes mergers involving a capitalization of less than $1 million. In omitting small mergers, all the lists for the 1887-1904 period overstate the proportion of mergers having monopoly as their goal and accordingly understate the proportion of mergers formed for other purposes. The number of such omissions is not known but it must have been large. According to a frequency distribution of mergers by capitalization constructed in 1899, the modal class of mergers was no greater than the $1-$5 million group; it may have been smaller.[8] Hence all the lists of early mergers deal only with the upper half of the frequency distribution. The upper half, however, contains a dispropor-

[6] *Ibid.*, pp. 70 ff.

[7] See the discussion in the next section.

[8] A. S. Dewing, *The Financial Policy of Corporations* (4th ed., Ronald, 1941), pp. 924-925, note b.

tionately large share of mergers that resulted in substantial market control.

Another shortcoming of research on mergers stems from statistical ambiguities inherent in most measures designed to show the impact of mergers on concentration. If, as is usually done, researchers concentrate their attention upon the change in ownership of *fixed* assets attending mergers, the conclusion that mergers increase concentration of control in some sense is inescapable. It does not necessarily follow, however, that control over *total* assets has become more concentrated. Whether or not it has depends upon how the merger was performed. Where one corporation acquires the assets of another for cash (a method of merging, according to the FTC, used frequently in recent years), the surviving corporation simply reduces liquid assets and increases fixed assets by a corresponding amount; the selling corporation reduces fixed assets and increases liquid assets. Total assets for neither firm changes. On the other hand, where mergers occur by simply fusing ownership, such as through stock exchanges, statutory proceedings, and holding company arrangements, and no exchange of assets among firms is involved, it seems fairly safe to conclude that they increase concentration of control over total assets. Asset transfers among corporations and ownership fusions, therefore, may not have the same effect on concentration of control. However, a distinction between the two is seldom made in merger analysis.

Finally, the literature has dealt only with those portions of the component firms going into the merger and has neglected those portions left over. No merger is ever quite complete in the sense that the resultant firm is exactly the sum of its previously independent parts. Before merging, each firm had a president, a board of directors, a comptroller, and other officers usually associated with entrepreneural decision making. Regardless of the number of firms merging, the surviving firm still has but one president, one board of directors, one comptroller, etc. Hence, while mergers increase the quantity of assets controlled by the entrepreneurs of surviving firms, they also free entrepreneurs to create new firms with new assets elsewhere. In short, merger is a means of contraction and exit as well as of expansion, and its total impact on the structure of industry may largely depend upon which motive is dominant.

These may be only fringe issues, or they may be extremely significant. We will not know which until the scope of merger investigations has been expanded to include more than balance sheet items,

and until theorists have provided a more useful definitional and conceptual framework for merger research. However, there is much that we do know, or at least have good reasons for concluding we know, about the social and economic importance of mergers.

2. *Cyclical Behavior of Mergers*

MOST students of mergers have apparently concluded that mergers are timed closely with the business cycle.[9] This conclusion, however, is based entirely upon the rather superficial observation that 1899 and 1929 were peaks in both merger formation and business activity, and that the most recent flurry of mergers occurred in a period of wartime and postwar prosperity. What purpose would be served by testing the validity of this thesis is not entirely clear, but a few observations are in order. A study of the cyclical behavior of mergers may furnish clues to the pattern of collusion. Moreover, the cyclical aspects of merger activity may suggest dominant motives for merger. Finally, cyclical patterns of merger activity may have important implications for public policy. For example, if it can be clearly demonstrated that mergers are a product of booms (or a product of a depression-prosperity sequence), effective control over merger activity may be sought through fiscal measures as well as through the antitrust laws.

Unfortunately, the collecting of data on mergers has itself been explosively cyclical. The available data relate almost entirely to those periods in which the number of mergers formed per unit of time is believed to have been unusually high. About the period 1904-1918 we know only that the number and size of mergers formed must have been too insignificant to attract even casual attention. Hence, quantitative analysis of the cyclical behavior of mergers must be confined largely to those periods recognized as merger movements. Any conjectures about "normal" and "slump" periods of merger activity must be based upon data for the 1930's, a decade that holds out little promise as a meaningful reference point from which to measure anything—especially mergers.

Furthermore, data for the 1887-1904 merger period are a product of truncated sampling and are not comparable with those of later

[9] The frequency of such assertions makes substantiation of the statement hardly necessary. However, for typical observations made after each of the three major merger movements, the reader is referred to Luther Conant, Jr., "Industrial Consolidations in the United States," *American Statistical Association Publications*, Vol. 7, March 1901; Willard L. Thorp, "The Persistence of the Merger Movement," *American Economic Review*, Supplement, March 1931; and *The Merger Movement, A Summary Report*, as cited, p. 18.

years. Annual series for mergers occurring before 1904 have been compiled by Moody, Conant, Watkins, and the Bureau of the Census.[10] They all use the industrial consolidation, combination, or "trust" as units of measurement, and build their series upon rather restricted definitions of these terms. None of the lists include mergers having a total capitalization of less than $1 million. The Bureau defines a combination as "a number of formerly independent mills which had been brought together into one company under a charter obtained for that purpose." By a strict interpretation of the Bureau's definition its series would include only those consolidations created by new charters, i.e. statutory combinations. A cross check of its list with other lists, however, reveals that it contains a fairly large number of conventional mergers. Moreover, the Bureau specifically stated that its list includes several holding companies.[11] However, it does not include "many large establishments that grew up by the erection of new plants or *the purchase of old ones*" (italics added). Thus the Bureau's list probably does not include those mergers resulting from the outright purchase of one firm's assets by another. It does comprise all known statutory mergers, some conventional mergers, and several holding companies, having capitalizations of $1 million or more. The number of mergers omitted is not known but it must have been substantial, since other lists covering the same time period (which are themselves limited to mergers involving capitalizations of at least $1 million and are therefore incomplete) include over one and one-third times as many.[12]

Conant's series covers industrial consolidations as defined in their "narrow Wall Street sense" having authorized capitalizations (the sum of bonded indebtedness and authorized common and preferred stock) of $1 million or more. Accordingly all railroads, public utilities, and similar fields, and all small consolidations were excluded from Conant's series by definition. Watkins' series is also limited to consolidations having capitalizations of at least $1 million and includes most of those appearing on Conant's list. Moody's list includes

[10] John Moody, *The Truth about the Trusts* (Moody Publishing Co., 1904); Conant, *op. cit.*; Myron W. Watkins, *Industrial Combinations and Public Policy* (Houghton Mifflin, 1927); and *Twelfth Census of the United States*, Bureau of the Census, Vol. VII, Part 1, pp. xxv ff.

[11] *Twelfth Census of the United States*, as cited, p. xxvi. For two widely different views on what types of combinations the Bureau's list does include, see Morris A. Adelman, "The Measurement of Industrial Concentration," *Review of Economics and Statistics*, November 1951, pp. 293-294, and comment on this paper by George W. Stocking, *The Review of Economics and Statistics*, May 1952, pp. 163-164.

[12] See below a comparison with Livermore's list.

only those consolidations having *issued* capitalizations of at least $1 million and therefore omits some of those listed by both Conant and Watkins.

For the years 1890-1900, the period covered by all four series, the Bureau of the Census lists 170 consolidations; Conant lists 212; Watkins, 172; and Moody, 155. A master list compiled by Livermore from these and other lists for the period 1890-1904 includes 377 combinations.[13] When from this list is deducted the highest estimate of the number of consolidations (146) formed in the years 1901-1904, 231 are left for the period 1890-1900, or 9 per cent more than Conant, 36 per cent more than the Bureau, 34 per cent more than Watkins, and 49 per cent more than Moody list for the same period. It is not known how many mergers or consolidations were omitted from Livermore's list because they were not strictly industrial in character, had capitalizations of less than $1 million, or were simply overlooked, but the number must have been significant. For example, a frequency distribution by capitalization of 259 industrial consolidations believed to have been in existence in 1899 shows that the modal capitalization did not exceed the $1-$5 million class, and that 43 consolidations had a capitalization of exactly $1 million.[14] The distribution suggests that a considerable number of consolidations must have been capitalized at less than $1 million. Moreover, the 259 consolidations include no public utility, mining, or local enterprises. On the other hand, some of the consolidations appearing on all the lists were probably no more than "paper incorporations."[15]

The only continuous data on mergers for the 1919-1939 period were compiled by Thorp from the daily reports of the Standard Statistics Co.[16] The series shows the net number of concerns disappearing quarterly and annually in manufacturing and mining through mergers and acquisitions. According to Thorp, the record is neither complete nor very accurate, but should serve as a measure of cyclical behavior and trend tolerably well.[17] The FTC, using reports made by Moody's Investors Service and Standard & Poor's Corp. as primary sources of data, has extended Thorp's quarterly series of net disappearances through mergers and acquisitions through the fourth quarter of 1947.

[13] *Op. cit.*, pp. 70 ff. The annual series is not available.
[14] Dewing, *op. cit.*, pp. 924-925, note b.
[15] *Ibid.*, p. 924, note a.
[16] Willard L. Thorp and Walter F. Crowder, *The Structure of Industry*, Temporary National Economic Committee, Monograph 27, 1941, pp. 231-234.
[17] *Ibid.*, p. 232.

TABLE 1

Industrial Mergers in the United States, 1887-1904 and 1919-1947

Year	NUMBER OF MERGERS					TOTAL CAPITALIZATION (millions of dollars)		
	Conant	Watkins	Census Bureau	Moody	Highest Number Reported	Conant	Watkins	Census Bureau
1887	8		0	1	8	$ 216.2		$ .0
1888	3		0	2	3	23.6		.0
1889	12		9	5	12	152.2		97.0
1890	13	11	11	2	13	155.2	$ 137.6	119.5
1891	17	13	9	7	17	166.2	133.6	141.2
1892	10	12	10	7	12	193.4	170.0	124.2
1893	6	5	7	7	7	239.0	156.5	180.4
1894	2	0	4	3	4	30.4	.0	17.4
1895	6	3	5	6	6	107.3	26.5	124.5
1896	5	3	5	5	5	49.9	14.5	29.9
1897	4	6	7	5	7	81.0	75.0	99.5
1898	20	18	20	12	20	708.6	475.3	623.8
1899	87	78	79	74	87	2,244.0	1,886.1	1,696.8
1900	42	23	13[a]	27	42	831.4	294.5	237.7
1901		23		46	46		1,632.3	
1902		26		63	63		588.9	
1903		8		18	18		137.0	
1904		8			8		236.2	

	DISAPPEARANCES THROUGH MERGER AND ACQUISITION[b] QUARTER				
	1	2	3	4	Total[c]
1919	57	82	147	125	438
1920	209	186	188	166	760
1921	184	99	80	122	487
1922	86	53	82	76	309
1923	84	67	44	105	311
1924	110	71	87	85	368
1925	124	104	127	175	554
1926	286	236	171	146	856
1927	161	247	220	213	870
1928	197	315	242	274	1,038
1929	349	395	312	160	1,245
1930	204	237	156	189	799
1931	163	142	87	71	464
1932	7	102	46	40	203
1933	19	43	33	12	120
1934	19	25	34	23	101
1935	36	27	38	24	130
1936	39	25	27	32	126
1937	32	27	29	31	124
1938	32	20	22	33	110
1939	24	22	16	25	87

TABLE 1 (*Continued*)

1940	29	49	31	34	143
1941	24	25	26	47	122
1942	19	17	31	52	119
1943	48	47	49	77	221
1944	69	72	77	102	320
1945	57	54	77	139	327
1946	97	132	109	75	413
1947	98	97	77	125	397
Total 1940-1947					2,062

[a] Through June 30.

[b] All but 104 disappearances from mining and manufacturing. Capitalization data not available.

[c] Annual totals larger than sum of quarterly figures because exact dates of some mergers were not known.

Source: 1887-1904 data: Luther Conant, Jr., "Industrial Consolidations in the United States," *American Statistical Association Publications*, Vol. 7, March 1901; Myron W. Watkins, *Industrial Combinations and Public Policy* (Houghton Mifflin, 1927); *Twelfth Census of the United States*, Bureau of the Census, Vol. VII, Part 1, pp. xxv ff.; John Moody, *The Truth about the Trusts* (Moody Publishing Co., 1904). 1919-1939 data: Willard L. Thorp and Walter F. Crowder, *The Structure of Industry*, Temporary National Economic Committee Monograph 27, 1941, p. 233. 1940-1947 data: *The Merger Movement, A Summary Report*, Federal Trade Commission, 1948, estimated from chart 2, opposite p. 18.

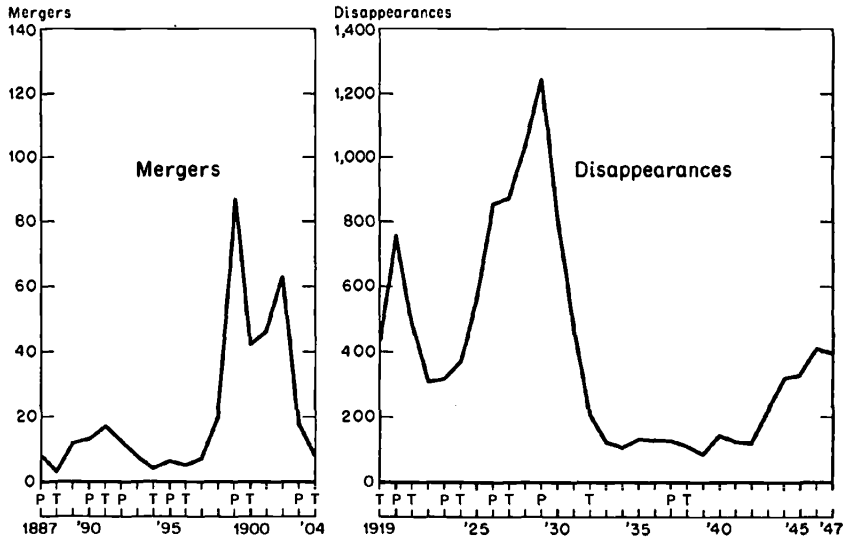
Since the available merger data are incomplete, biased, and probably subject to errors other than those of sampling, the annual merger series shown in Table 1 and Chart 1 probably contains several spurious cycles. However, since there is no promising method for separating the spurious ones from the real, we shall count them all. The 1887-1904 segment of the merger series contains 3 cycles and 6 turning points, while over the same period the National Bureau of Economic Research recorded 5 reference cycles and 10 turning points (excluding 1887 and 1904).[18] Five of the 6 merger-cycle turning points coincide with reference-cycle turning points; however, one merger-cycle peak (1891) coincides with a reference-cycle trough. The Fechner-Weber index of correlation[19] between general business activity and mergers for the seventeen-year period is .65. (If the total

[18] Arthur F. Burns and Wesley C. Mitchell, *Measuring Business Cycles* (NBER, 1946), p. 78.

[19] The formula for the Fechner-Weber index is as follows: $I = (C - D)/(C + D)$, where C is the total number of years in which the directional movements of the merger series and of business activity coincide, and D is the total number of years in which they move in opposite directions. The Fechner-Weber index for two time series moving at random should equal zero. I am indebted to my colleague Nicholas Georgescu-Roegen for calling the Fechner-Weber index to my attention.

capitalization series instead of the one based on the number of mergers is used, 7 merger-cycle turning points out of 9 coincide with reference-cycle turning points, and 3 fall between reference-cycle turning points.) The 1919-1947 segment of the merger series contains 2½ cycles and 6 turning points between 1919 and 1939, while over the same period there occurred 5 reference cycles and 11 turn-

Chart 1
Industrial Mergers and Business Cycles, 1887-1904, and 1919-1947



P's and T's indicate reference cycle peaks and troughs.
Source: Table 1.

ing points.[20] Only 2 of the 6 merger-cycle turning points coincide with reference-cycle turning points and the other 4 fall between reference-cycle turning points. The Fechner-Weber index of correlation between mergers and general business activity is .20.

These data do not give strong support to the thesis that merger cycles are timed closely with business cycles. The correlation between mergers and general business activity for the 1919-1939 period is only a little better than that which would be expected of two

[20] Reference-cycle turning points recently calculated by the NBER for the war and postwar years cannot be used. Only two reference-cycle turning points occur between 1938 and 1947 (the terminal year of the merger series)—a peak in February 1945 and a trough in October of the same year. See Robert A. Gordon, *Business Fluctuations* (Harper, 1952), p. 216.

time series moving at random. While the Fechner-Weber index shows that over the period 1887-1904 mergers and business activity generally moved in the same direction, the apparent high correlation is subject to several important qualifications. The 1888-1894 merger cycle appears to have been unrelated to general business activity. The initial trough, the peak, and the final trough of the cycle all coincided with troughs of reference cycles. Hence the high value of the Fechner-Weber index for the period 1887-1904 is almost wholly accounted for by the identical directional movements of the merger series and the business cycle for all years between 1897 and 1904. Because of the great difference in amplitudes between merger cycles and business cycles over this period, the high index of directional correlation is of doubtful significance. The merger wave of 1897-1904 comprised an era. No other merger wave of comparable scope and size is to be found in the annals of American economic history. By way of contrast, the two business cycles of 1897-1900 and 1900-1904 were relatively insignificant. Neither of them is included among the major business cycles in the United States; both are generally regarded as minor waves superimposed upon the expansion phase of a major cycle culminating in 1907.[21] Over the same period the turning points in stock-price cycles (with the exception of 1901) also coincided with those of the merger cycles. Moreover, as it will be shown later, between 1897 and 1903 stock prices and mergers were subject to the same pronounced cyclical swings. Hence, merger activity between 1887 and 1904 seems to have been tied more closely to stock-price movements than to general business fluctuations.

The cyclical aspects of mergers occurring over the 1919-1941 period have been subjected to close statistical examination by Weston.[22] While he questions the fruitfulness of regarding mergers as having occurred in cycles at all, Weston correlates merger activity with the Federal Reserve Board (FRB) index of industrial production, the wholesale price index, and the Dow-Jones industrial stock price index. A summary of his results appears in Table 2.

Of the three variables investigated by Weston, industrial stock prices appear to have been most closely related to merger activity. The correlation coefficient between the number of disappearances per year and the Dow-Jones industrial stock price annual averages was .676; the coefficient was significant at the 1 per cent probability

[21] See Alvin H. Hansen, *Business Cycles and National Income* (Norton, 1951), pp. 24, 28-29.

[22] J. Frederick Weston, *The Role of Mergers in the Growth of Large Firms* (University of California Press, 1953).

level. Correlation between mergers and industrial output and between mergers and wholesale prices was much weaker.

This evidence of colinearity between stock-price movements and merger activity tempts one to accept as valid one partial explanation of mergers; namely, that rising security prices stimulate merger activity by making possible large gains to promoters through asset revaluations. This explanation seems all the more acceptable when it is noted that the 1897-1904 and 1923-1934 merger movements rode

TABLE 2

Correlation between Mergers and Industrial Production, Wholesale Prices, and Industrial Stock Prices during the Interwar Period

	Correlation Coefficient[a]	*Level of Significance*
Mergers and industrial production	.434	Significant at 5%; not significant at 1%
Mergers and wholesale prices	.453	Significant at 5%; not significant at 1%
Mergers and industrial stock prices	.676	Significant at 1%

[a] Weston also investigated multiple regression relationships and obtained the following regression equation:

$$X_1 = -446.15 - 440.39X_2 + 3.7414X_3 + 8.4544X_4$$

where X_1, X_2, X_3, and X_4 are respectively the number of mergers per year, and the industrial production index, stock prices, and wholesale commodity prices. Weston found the multiple correlation coefficient to be .82 and statistically significant at the 1 per cent level. Only the relationship between the number of mergers and stock prices was found to be clearly significant. Letter from J. Fred Weston, Nov. 10, 1952.

Source: J. Frederick Weston, *The Role of Mergers in the Growth of Large Firms* (University of California Press, 1953).

to their respective peaks on crests of rapidly rising stock prices of corresponding magnitudes. Like most simple explanations of complex phenomena, however, this one also leaves a great deal unexplained. For example, stock prices registered one of their most rapid gains in history between the fourth quarter of 1932 and the fourth quarter of 1933; over this period, however, the quarterly volume of mergers decreased. Moreover, recent findings[23] suggest that the relationship between stock prices and merger activity for the 1942-1947 period did not conform to that for the period 1919-1941. Hence, it would be unwise to ascribe more to the statistical findings than they clearly show, namely: that merger activity seems to be much more closely associated with fluctuations in stock prices than with those

[23] J. K. Butters, John Lintner, and W. L. Cary, *Effects of Taxation on Corporate Mergers* (Harvard University Press, 1951), p. 312.

in general economic activity and wholesale prices; moreover, all great upswings in stock prices have not brought on corresponding upswings in merger formation; and the most recent flurry of mergers occurred while stock prices were moderately steady.

The cyclical aspects of mergers, therefore, may tentatively be summarized as follows: (1) The widely expressed view that mergers are causally connected with general economic fluctuations is only weakly supported by the available statistical data. (2) The relationship between merger activity and wholesale price movements lends no support to the hypothesis that mergers are motivated by generally declining prices brought on by outbreaks of competition. In fact, for the years 1919-1941 merger activity and wholesale prices tended to rise and fall together. (3) When correlated with reference cycles, industrial production, industrial prices, and stock prices, merger activity appears to have been much more strongly associated with the latter than with any of the other three. However, stock prices and industrial production have usually followed similar cyclical patterns. Hence causal relationships between either of these and merger activity are difficult to infer from statistical analysis. Such an inference is all the more precarious because no allowance can be made for the average time interval separating decisions to merge and the mergers themselves.

These conclusions alone would justify special treatment of each period of high merger activity on the grounds that each merger movement may possess features peculiar to itself. Moreover, if mergers are to be appraised according to their impact on the structure of industry, special treatment of each wave of mergers is necessary.

3. *The Early Merger Movement: 1887-1904*

ALTHOUGH contemporaries of the period may have differed about the purposes and the ultimate significance of the 1887-1904 combination movement, on one point they were in accord—the movement took on phenomenal proportions. It gave rise to a stream of economic literature which by 1920 was probably equal in volume to those on the industrial revolution, international trade, or the business cycle. Complete books on the movement by Moody, Ely, Dewing, Jenks, von Halle, Ripley, van Hise, Montague, LeRossignol, Nolan, Collier, and a host of others had appeared before 1920.[24] In

[24] John Moody, *op. cit.*; R. T. Ely, *Monopolies and Trusts* (Macmillan, 1900); A. S. Dewing, *Corporate Promotions and Reorganizations* (Harvard University Press, 1914); J. W. Jenks, *The Trust Problem* (McClure, Phillips, 1900); Ernst von Halle, *Trusts, or Industrial Combinations and Coalitions in the United*

the decade following there appeared such standard works as those by Seager and Gulick, Watkins, Jones, Curtis, Basset, Tippetts and Livermore, and others.[25] If to all these were added the journal articles, pamphlets, newspaper reports, and public records that focused their attention upon the early combination movement, the aggregation would constitute a private library of no mean size.

The early combination movement, therefore, was of extraordinary social and economic importance. Historians have recorded it as an era and economists consider it the period when the pattern of concentration characteristic of twentieth-century American business formed and matured.[26]

However, we do not know the extent to which those changes in the form of American enterprise that occurred during the early merger period were in fact a product of mergers; nor, one must sorrowfully add, is it likely ever to be fully determined. It was not until the appearance of Nutter's recent study[27] that the extent of concentration as early as 1899 could be compared with that of subsequent years. By 1899, however, the early combination movement had already reached its peak. Since the change in concentration between 1887 and 1899 for the whole economy has not yet been ascertained, we would not know what impact mergers had on concentration over this period even if we could assume they accounted for it all.

Moreover, concentration in ownership of productive resources and monopoly power in the market sense, while never quite the same,[28] had little in common prior to 1893. One need only compare railroad mileage maps for selected years between 1870 and 1893 to sense the significant spatial transformation that markets underwent in the

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States (Macmillan, 1895); W. Z. Ripley, *Trusts, Pools and Corporations* (rev. ed., Ginn, 1916); C. R. van Hise, *Concentration and Control* (Macmillan, 1912); G. H. Montague, *Trusts of Today* (McClure, Phillips, 1904); J. E. LeRossignol, *Monopolies Past and Present* (Crowell, 1901); E. J. Nolan, *Combinations, Trusts and Monopolies* (Broadway Publishing Co., 1904); W. M. Collier, *The Trusts* (Baker Taylor, 1900).

[25] Seager and Gulick, *op. cit.*; Watkins, *op. cit.*; Eliot Jones, *The Trust Problem in the United States* (Macmillan, 1929); Roy E. Curtis, *The Trusts and Economic Control* (McGraw-Hill, 1931); William R. Basset, *Operating Aspects of Industrial Mergers* (Harper, 1930); Charles S. Tippetts and Shaw Livermore, *Business Organization and Public Control* (Van Nostrand, 1932).

[26] Cf. Paul T. Homan, "Trusts," *Encyclopedia of the Social Sciences*, Vol. 15, (Macmillan, 1931), Vol. 15, p. 114.

[27] G. Warren Nutter, *The Extent of Enterprise Monopoly in the United States, 1899-1939* (University of Chicago Press, 1951).

[28] For a clear discourse on the differences between the two, see Adelman, *op. cit.*, pp. 269 ff.

short span of about twenty years. As late as 1870 virtually the entire United States, except what is now known as the Trunk Line Territory, was a mass of unconnected local markets. Between 1870 and 1900 railroad mileage in the United States increased from 52,922 miles to 194,262 miles, an increase of 268 per cent. Over the same period freight rates fell from 18.2 mills to 7.3 mills per ton-mile, or over 60 per cent. Between 1882 and 1900 the ton-miles of traffic carried by railroads in the United States increased from 39.3 billion to 141.6 billion, or 260 per cent.

There are no ready means for relating this tremendous growth of transportation facilities and reduction in transportation costs to the growth in size of particular markets. However, it can be crudely estimated that the area served by the average manufacturing establishment in 1900 was about 3.24 times as large as it was in 1882.[29] Market extension begets specialization; and specialization requires that the relatively inefficient give way to the relatively efficient. Accordingly, by simply applying the logic of comparative cost analysis, low-cost producers probably drove out some high-cost producers during the period 1870-1900. And since market extension reduces the values of the less efficient firms' fixed assets (possibly even to zero), buying out may well have implemented the driving out process, thereby increasing concentration in ownership.[30] Moreover, market expansion must have given considerable impetus to the perfection of mass-production as well as mass-marketing techniques, all of which stimulated growth in the size of firms.

Hence, not all the increase in concentration or the ascendancy of bigness during the early combination period can be attributed to the formation of combinations. However, of all those forces unleashed in the latter part of the nineteenth century that tended to make for larger size and greater concentration, the industrial combination was clearly the most important. According to Moody,[31] 318 industrial combinations formed prior to 1904 involved over $7 billion in securities issues and 5,288 distinct plants. While Moody's

[29] Between 1882 and 1900 the physical volume of manufactured production in the United States doubled and ton-mile shipments increased 3.6 times. The average radius of all market areas, therefore, increased 1.8 times. Hence (from $A = \pi r^2$), the area served by each production center must have increased by 3.24 times. Physical volume of production from Edwin Frickey, *Production in the United States, 1860-1914* (Harvard University Press, 1947), p. 54; ton-miles data from "Railway Statistics Before 1890" (mimeographed), Interstate Commerce Commission, 1932.

[30] It does not follow, however, that monopoly in the market sense increased also; in fact, it may well have decreased.

[31] *Op. cit.*, p. 486.

list includes some duplications, it errs on the under side; the number of combinations omitted almost certainly exceeds the number counted twice. It can be roughly estimated that the 1887-1904 combination movement accounted for approximately 15 per cent of the total number of plants and employees comprising manufactures in 1900.[32] The greater part of the movement, in terms of capitalization, the number of consolidations, and the number of plants involved, occurred during the eight-year period 1897-1904 (see Table 3). The

TABLE 3

Number of Trusts Formed and Capitalization and Plants Involved for Specific Periods before 1904

	Number of Trusts	*Per Cent of Total*	*Capitalization (mill. $)*	*Per Cent of Total*	*Number of Plants*	*Per Cent of Total*
Up to 1890	23	7	$ 504.2	7	663	12
1890–1896	38	12	501.0	7	398	8
1897–1904	257[a]	81	6,146.1	86	4,227	80
Total	318[a]	100	$7,151.3	100	5,288	100

[a] Includes 13 in process of reorganization in 1904.

Source: John Moody, *The Truth about the Trusts* (Moody Publishing Co., 1904).

single year 1899 accounted for 87 combinations representing a total capitalization of $2.24 billion,[33] or nearly 25 per cent of all the combinations known to have occurred between 1887 and 1904.

Neither numbers of combinations nor amounts of capitalization involved are good measures of the growth of size or market control. For example, the formation of a single combination—the United State Steel Corp. in 1901—reportedly involved 785 plants and $1.37 billion, or over 60 per cent of the total capitalization of the 87 combinations formed in the peak year of 1899, and 19 per cent of the total capitalization and 14 per cent of all the plants involved in all the combinations recorded for the 1887-1904 period. Obviously, therefore, even the larger mergers comprise a heterogeneous class.

[32] The list of 185 combinations compiled by the Bureau of the Census accounted for 8.4 per cent of all manufacturing employment in 1900. This list includes less than one-half the combinations known to have occurred up through 1904. The Bureau recorded 296,440 manufacturing establishments and 512,191 factories and hand and neighborhood industries for the year 1900; the number of plants exceeded the former but was not as large as the latter. However, for what it is worth, the number of plants affected by combinations was 18 per cent of the total number of establishments and 10 per cent of the total number of factories and hand and neighborhood industries recorded by the Bureau in 1900.

[33] Conant, *op. cit.*, pp. 7-9.

Nevertheless, a significant percentage of the larger horizontal mergers possessed one common feature: they increased concentration of control over their respective markets. The mean share of the total domestic market controlled by 22 mergers studied by the Industrial Commission was 71 per cent.[34] Of 92 large mergers studied by Moody, 78 controlled 50 per cent or more of the total output of the industry; 57 controlled 60 per cent or more; and 26 controlled 80 per cent or more.[35] While more recent students of the early merger movement have detected some serious errors of overstatement of control in Moody's data,[36] they have not challenged the essential features of Moody's conclusions. Even in the absence of comprehensive pre-merger period data, therefore, it seems safe to conclude that a significant number of the large horizontal mergers greatly increased the size of particular firms and their proportionate control over both total productive capacity and the market, however defined. In the steel, tobacco products, petroleum refining, sugar refining, nonferrous metal smelting, shoe machinery, typewriter, and other industries, it is quite clear that mergers transformed oligopolistic or competitive markets into markets dominated by partial monopolists frequently controlling over 50 per cent of total output. In short, the aim of such mergers clearly must have been monopoly, although it was never perfectly achieved and rarely if ever displaced anything resembling perfect competition.

It does not follow, however, that either greater relative size or market control motivated a majority of the 1887-1904 mergers. At least, if motive can be at all inferred from results, it is tautological to describe the period as one of "merger for monopoly";[37] i.e. it suggests a motive for only those mergers that produced dominant firms. Many early mergers, however, obtained no significant degree of market control. Hence, it must be concluded that they were either highly unsuccessful in their purpose or were formed for other reasons.

In 1935 Shaw Livermore compiled a master list of mergers formed between 1890 and 1904.[38] (By this time the record should have been fairly complete.) While Livermore was principally concerned with

[34] *Report on Trusts and Industrial Combinations*, Industrial Commission, 1901, Vol. XIII, *passim*, esp. pp. xvii-xviii.

[35] Stigler, "Monopoly and Oligopoly by Merger," as cited, p. 29; quoting Moody, *op. cit.*

[36] Cf. Livermore, *op. cit.*, pp. 68 ff. See also the discussion below.

[37] Cf. Stigler, "Monopoly and Oligopoly by Merger," as cited, p. 27.

[38] Livermore, *op. cit.*, pp. 68-96.

measuring the financial success of mergers, he made some observations on why they were successful. After eliminating duplications, Livermore's list contained 377 mergers that showed promise of conforming to his definition, i.e. gave rise to firms with sufficient power to influence their respective markets. Mergers easily recognized at the outset as nonmonopolistic in character, therefore, never appeared on the original list. Thirty-eight mergers were then dropped from the list because they were strictly local and so small that they obviously had obtained *no* greater market influence through consolidation. Of the remaining 339 mergers, careful study showed that only 155 had resulted in the creation of firms with enough power *markedly to influence the market*, and only a select minority of these had obtained before 1910 any *considerable degree of monopoly control.*[39] Livermore later identifies his "select minority" as the 16 out of a total of 146 successful mergers that owed their success to monopoly control or unfair and vexatious practices.[40]

Further study of Livermore's list of 155 "influential" mergers, however, shows that considerably more than 16 attained an initial dominant position in their respective industries. One hundred and thirty-two of them appear on Moody's list of "trusts,"[41] seventy of

[39] *Ibid.*, pp. 71-75. The terms "power markedly to influence the market" and "considerable degree of monopoly control" are somewhat confusing. While they appear to be roughly equivalent terms, in their context they were clearly designed to mean different things. To eliminate this source of confusion, Mr. Livermore has furnished the following additional information: "What I meant by . . . 'somewhat less than half could rightfully claim to be mergers with power enough to influence markedly conditions in their industry' was about as follows: Some companies possess the ability to draw executives away from competitors by offering either a better salary or more power; they are the first in their industries to introduce new technology; they are the leaders in changing the location of plants to reduce shipping and marketing costs; they devote earnings to new equipment and methods, which keep them a step ahead of competitors in operating costs; they tend to be the leaders in setting wage patterns; they are the most prominent voices in industry groups or associations. This is what I meant by influencing conditions and being 'successful.' It is not the strength or leadership which can be defined as truly monopoly power or oligopoly power, as economic theorists define those terms, that is, there is no clear-cut ability to restrict output, to raise prices above the bulk-line cost situation in the industry, or the power to exclude or eject competitors. By 'any considerable degree of monopoly control' I intended to refer to the possession of monopoly power in the theoretical sense in which economists use it. That is, this small group *did* possess the kinds of power indicated above which American theorists associate with the concept of monopoly. Note that I said 'in considerable degree' to assure the reader that this little group did not possess absolute monopoly power in the old-fashioned sense." Letter dated September 29, 1952.

[40] *Ibid.*, pp. 87-88.

[41] Moody, *op. cit.*, pp. 453-469.

which Moody estimates as having obtained control over 40 per cent or more of their markets. However, the evidence that Moody's estimates greatly exaggerate the extent of control obtained by 19 of the 70 mergers is sufficiently strong to warrant dropping them from the monopoly group.[42] For 47 of the remaining 51 mergers it can either be verified that they obtained over 40 per cent of their respective markets or the evidence that they did not do so is too weak to justify shifting them to the nonmonopoly group.[43] The three remaining mergers appearing on both Moody's and Livermore's lists—American Ice, National Candy, and International Mercantile Marine—raise special problems of classification. Both the American Ice and National Candy mergers involved only a small percentage of their respective industries' total capacities. However, American Ice brought together 80 per cent of the ice capacity located along the Hudson and Kennebec rivers and the National Candy Co. obtained control

[42] Moody's estimates of market control obtained through merger were frequently based upon statements made by promoters prior to the merger. Census data and other evidence show the per cent of control stated by Moody to have been either exaggerated or inapplicable in about two dozen mergers. For example, the New England Yarn Co., listed by Moody as controlling from 20 to 40 per cent of the yarn industry, never controlled more than 389,000 mule spindles and 194,000 frame spindles, or only about 3 per cent of the active spindles in the United States at the time the merger was formed. Moody listed two shipbuilding mergers as controlling over 50 per cent of their "local" markets while the shipbuilding market was essentially an international one. The American Hide and Leather merger was listed as controlling about 55 per cent of the upper leather industry although the merger brought together only 22 of the 407 establishments producing upper leather in the United States at the time of the merger. International Steam Pump and Allis-Chalmers were listed as having control over 80 per cent and 50 per cent respectively of the "heavy steam power machinery of all kinds"; one must obviously be dropped. The same is true of several copper refining and cast iron and sewer pipe mergers. Other mergers erroneously listed as having obtained control over as much as 40 per cent of their respective markets are United Button Co. (merging only 3 out of 238 button establishments), Virginia-Carolina Chemical Co. (phosphate), U.S. Leather, U.S. Envelope, American Glue, Standard Sanitary, and National Enameling and Stamping.

[43] Some, however, might be considered borderline cases: Moody lists U.S. Cotton Duck as having obtained control over from 45 to 65 per cent of the cotton duck market. The company's total sales in 1902, comprising a wide variety of cotton textile products, amounted to less than one-half of the total value of cotton duck alone sold in the United States for the year 1900. Moreover, Dewing's study shows the merger to have been promoted for purposes of promoter's profits rather than market control. (Dewing, *Corporate Promotions and Reorganizations*, as cited, p. 376.) The percentages of market control obtained by the American Fork and Hoe, Corn Products Refining, National Asphalt, American Car and Foundry, Harbison Refractories, and National Fireproofing mergers appear also to have been overstated by Moody.

over about 55 per cent of the candy-producing capacity located in ten Midwestern cities. The former, because ice markets are essentially local, initially obtained considerable monopoly control over the market in which it sold; the latter, for opposite reasons, probably did not. Moody lists the International Mercantile Marine merger as having obtained control over 40 per cent of Atlantic shipping lines, but states elsewhere that ". . . it must be plain to even the most superficial observer today [shortly after the merger] that the entire trouble with the Shipping Trust is its total lack of a monopoly advantage. It is subject to free and open competition from companies which are fully as well equipped, and in addition have important advantages themselves in the shape of government subsidies and less weighty capitalizations."[44] It is doubtful therefore that the merger's actual control over Atlantic shipping lines ever came close to 40 per cent, although the object of the merger seems clearly to have been monopoly.[45]

About 51 of Livermore's mergers, therefore, obtained control over 40 per cent or more of their respective industries. To these may be added 8 that Moody included but Livermore omitted.[46] About 24 additional mergers neither clearly obtained substantial market control nor failed to do so. Some of them (Pressed Steel Car, American Colortype, American Soda Fountain, Electric Vehicle Co., and American Felt) involved only two or three plants, while others (Eastman Kodak and Pope Manufacturing Co.) involved many more. Moody lists 19 of them among his lesser industrial "trusts," a term he uses to designate all mergers. Livermore apparently includes these 19, along with 5 other mergers not listed by Moody, among those that obtained no monopoly power before 1910. In the face of inadequate or conflicting information in each case, we may arbitrarily assign about one-half of Livermore's 24 to the group of mergers for monopoly, thereby bringing the total number of such mergers to approximately 71. Hence, out of every 5 mergers ostensibly monop-

[44] Moody, *op. cit.*, p. 107. [45] *Ibid.*, p. 98.

[46] Moody recorded 9 "trusts" that do not appear on Livermore's list as having obtained 50 per cent or more control over their industries. One of these, The Expressage Corp., was not a merger. The other eight were American Caramel Co., California Fruit Canners Association, Casein Company of America, Borden's Condensed Milk Co., Computing Scale Company of America, Rubber Goods Manufacturing Co., Standard Table Oil Cloth Co., and U.S. Bobbin and Shuttle Co. Livermore may have dropped the first 4 of these 8 mergers from his original list on the grounds that they were small or involved only a few local plants while they competed in national markets. There are no apparent grounds for his having failed to include the last 4.

olistic in character, only 1 resulted in considerable monopoly control. Either one of two conclusions seems inescapable: (1) if the purpose of all mergers was monopoly power, 4 out of every 5 were unsuccessful in obtaining their initial objective, or (2) many mergers were formed for other purposes.

Stigler has observed that theory would lead us to expect mergers for monopoly to be characterized by the fusion of the leading firms in a given industry simultaneously.[47] Most mergers that resulted in substantial market control were in fact formed by simultaneously joining together the leading firms (Stigler notes one prominent exception—Standard Oil). At the time many mergers were formed, therefore, the participants must have known that they were not obtaining substantial control over their respective industries. To deduce motives from results is perhaps not the best logic—since some who sought monopoly through merger may have failed. Nevertheless, it is certain that many mergers formed during the early merger movement did not have monopoly power as their principal objective and, accordingly, must be explained on other grounds.

The literature provides convincing evidence that the abnormally large volume of mergers formed in 1897-1900 stemmed largely from a wave of frenzied speculation in asset values. Several students of the early merger movement agree that excessive demand for securities was an impelling force in the mass promotion of mergers after 1896. Average stock prices increased from $40 in the second quarter of 1897 to nearly $80 by the fourth quarter of 1899.[48] Most of this rise in stock prices occurred between mid-1897 and the closing months of 1899. The new and lucrative market gave rise to a new type of entrepreneur—the producer of mergers.[49] His method of ex-

[47] "Monopoly and Oligopoly by Merger," as cited, p. 26.

[48] Dow-Jones industrial stock average. Rumblings of a speculative avalanche were recorded by students of the early merger period as early as the middle 1880's, but the avalanche was periodically checked by the uncertain outcome of elections, the free silver issue, and short-lived panics. It broke forth in full fury at the end of the Spanish-American War. For a fairly detailed discussion of these and other forces at work in the 1890's, see Conant, *op. cit.*; see also the address of Henry D. Baker in *Chicago Conferences on Trusts* (The Civic Foundation of Chicago, 1900), p. 340.

[49] Stigler has expressed a similar view, but with the important difference that he calls the new type of entrepreneur a producer of monopolies. Stigler, "Monopoly and Oligopoly by Merger," as cited, p. 30. His interpretation is of course correct for the 71 (approximately) large mergers that resulted in substantial market control. For the most part, however, students of the early merger movement have assigned the professional promoter a much less important role than early investigatory agencies found him to have played. See *Preliminary Report*

ploiting the market was conceptually simple. The discounted values of expected future earnings (frequently inflated by promoter advertising) greatly exceeded the prevailing book values of assets. The formation of a merger or holding company afforded promoters and participating industrialists an opportunity to float additional securities issues against the same assets, thereby increasing the supply of securities by the difference between the amounts of the old and new securities issues. This difference, which was also the difference between the amounts of the old and new asset valuations (usually expressed as "good will"), was the promoter's gross profit. If the added inducement of monopoly could be offered the stock-buying public and the participating firms, the merger was, of course, that much easier to promote. For about four-fifths of the mergers involving capitalizations of $1 million and over formed between 1890 and 1904, however, this additional inducement appears to have been unnecessary.

The high incidence of failure among early mergers attests to their general speculative character. Presumably a large proportion of the profitable mergers were provided with a real basis for merger (market control or production and distribution economies) while a corresponding proportion of the unprofitable ones were not. The professional promoter was likely to have played a less important role in the formation of mergers falling in the former than in the latter group.[50]

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on Trusts and Industrial Combinations, Industrial Commission, 1900, Vol. 1, pp. 15-16.

[50] This hypothesis finds its origin in a very simple line of logic. The mergers that actually turned out to be profitable operating firms were *expected* to be more profitable than those that did not. Where expectations of operating profitably were high, however, less professional promotional services were needed. While readily available data on this point include a very small proportion of the total number of mergers, they seem generally to support the hypothesis. Ten mergers that were either promoted by banks, syndicates, or other persons outside the industry, or gave rise to large promotional profits, were early failures (National Starch, United Starch, Glucose Sugar Refining Co., American Bicycle, American Malting, New England Cotton Yarn, Mt Vernon-Woodbury Cotton Duck, U.S. Shipbuilding, Atlantic Rubber Stores, and Asphalt Co. of America). Of 11 mergers in which outside promoters played a negligible role, 7 were successes (Standard Oil, DuPont, American Sugar Refining, National Cash Register, International Harvester, International Shoe Machinery, and Aluminum Corp.), 1 was a limping success (International Paper), 1 was a rejuvenated success (National Salt), and 2 were early failures (National Wallpaper and National Glass). Data for 4 other mergers can be used, depending on the aspects of the mergers given emphasis, either to support or refute the hypothesis. Promoters of 2 additional successes, American Tobacco and American Can, received large promoters

Several attempts have been made to measure the success of the early mergers in terms of their relative profitability. Dewing, after comparing the actual profits of mergers with their expected profits and with the profits previously made by the independent firms comprising the mergers, concluded that only one-seventh of the larger mergers were successful.[51] However, Dewing's analysis is weak on several counts and tends to understate the proportion of mergers that were successful: (1) His conclusions were based on a sample of 35 mergers, less than one-tenth of the number of mergers known to have occurred between 1890 and 1904. (2) His pre-merger profits data were principally those reported in prospectuses and financial journals just before the merger occurred and therefore had probably been subjected to considerable window dressing. Moreover, his pre-merger profits data included the relatively profitable years of the late 1890's, while his post-merger data were for the decade beginning around 1900 and included the panics of 1903-1904 and 1907. (3) Most of the expected abnormal earnings were probably capitalized at the time the merger was formed, thereby increasing the annual charges against earnings over subsequent years. Moreover, estimated earnings in some cases were calculated from pre-merger estimates of *rates* of return. Accordingly, had *any* of the mergers earned the expected profits or rates of return they would have been remarkably profitable. Nevertheless, 5 of Dewing's mergers recorded earnings equaling or exceeding expected earnings, and 6 others recorded earnings that fell just a little short of their expected earnings.

More comprehensive studies of the profitability of mergers have been made independently by Shaw Livermore and the National Industrial Conference Board.[52] Both reach substantially the same conclusions but Livermore's analysis is cast in more quantitative terms (see Table 4). His study shows that 146 out of a total of 328 mergers were unquestionably successful. Of these, 130 owed their success (and profitability) to rapid technological and managerial improve-

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profits in the form of common stock. However, the promoters of each were associated with their respective industries and did not, as was frequently the case, sell their securities soon after the mergers were formed, thereby leaving the industry and taking their promotional gains in cash. Outside promoters played a minor role in 2 additional failures, U.S. Leather and National Cordage. However, bankers who engineered the financial plans for both received large underwriting fees. Cf. Dewing, *Corporate Promotions and Reorganizations*, as cited, p. 538; Jones, *op. cit.*, pp. 283-299; and Seager and Gulick, *op. cit.*, *passim*.

[51] A. S. Dewing, "A Statistical Test of the Success of Consolidations," *Quarterly Journal of Economics*, November 1921, pp. 84-101.

[52] Livermore, *op. cit.*, pp. 68-96; *Mergers in Industry*, N.I.C.B., 1929, pp. 28-119.

ment, promotion of quality brand names, development of new products or entry into a new subdivision of the industry, and to commercial exploitation of research. The remaining 16 owed their success to monopoly control or "unfair and vexatious practices." Promotional gains, expected monopoly profits, or a combination of both probably provided the dominant motives for some of the mergers falling in the latter group.[58] In the formation of many of the 130

TABLE 4

Success of Mergers Formed between 1888 and 1905

	Number of Mergers Studied	*Per Cent of Total*
Successes	146	45
Limping successes	28	9
Rejuvenations	13	4
Failures	141	43

Source: Shaw Livermore, "The Success of Industrial Mergers," *Quarterly Journal of Economics*, November 1935, pp. 75, 77.

mergers that owed their subsequent success to extraordinary entrepreneural ability, however, professional promoters probably played a subordinate role to business entrepreneurs.

Of the remaining 182 mergers studied by Livermore, 141 clearly were failures. Thirteen rejuvenations were saved from being classified as complete failures only because original ownership interests were not entirely eliminated. In the rejuvenating process—which in most cases commenced soon after the date of the merger—original capitalization was greatly revised, original management replaced, and ownership interests seriously reduced. As mergers, therefore, they should be added to the number of failures, bringing the total to 154. Twenty-eight limping successes underwent minor reorganization, but their ownership interests and managements did not change. Since they survived virtually intact for at least twenty-five or thirty years they clearly cannot be counted as failures.

Hence, 154 out of 328 mergers, or 47 per cent, turned out to be failures, 53 of which failed soon after they were formed. When it is considered that mergers represent not entirely new and untried ventures but fusions of firms that have already survived their uncertain years of infancy, such a high incidence of failure suggests that promotional rather than operational gains motivated the formation of a large number of them.

[58] See U.S. Steel, American Tobacco, and American Can, note 50.

As one would expect, the merger-creating industry did not thrive for long. Bankers, industrialists, and the stock-buying public, on whose support the promoter relied, soon had their expectations shattered. In the eighteen-month period preceding October 1903, the market value of 100 leading industrial stocks shrank by 43.4 per cent.[54] Much of this shrinkage was undoubtedly a downward adjustment of stock prices to reflect the difference between *expected* and *actual* earnings. The result was the "Rich Man's Panic" of 1903, by which time the early merger movement had run its course.

So much, then, for the motives behind the 1887-1904 merger movement. In summary, nearly one-half of the recorded mergers appear to have been unquestionably profitable ventures. A reasonable inference is that a large proportion of these were motivated by market control and production and distribution economies. About one-fifth of the mergers resulted in dominant firms controlling from nearly one-half to nearly all of their respective markets. These and some others that sought a high degree of market control and failed must have had monopoly as their goal. These two overlapping groups, while accounting for perhaps no more than one-half of the total number of recorded mergers, contain the larger mergers with which the literature has identified the movement. However, about an equal number of moderately large mergers were decidedly unprofitable, 53 of which failed soon after they were formed. Many in this group probably were products of the promoter, hastily put together for purposes of obtaining promotional rather than operational profits. The smaller mergers having capitalizations of less than $1 million were overlooked by those who recorded the early movement. There are no available data that suggest the reasons why they were formed or how they affected the structure of their respective markets. While they did not loom large in the business world, they appear to have been numerous and an integral part of the 1887-1904 merger wave.

Why the movement occurred when and as it did defies precise answers. In view of the moderately high positive correlation that exists between merger activity and stock prices,[55] it is worth pointing out that the movement conformed closely to a general statistical pattern. The great flurry of mergers following 1897 also fits neatly into Schumpeterian business cycle theory. Schumpeter considered merger as a form of innovation. According to his theory, neighborhoods of equilibrium were spawning grounds for innovations, and

[54] Moody, *op. cit.*, quoting the *Wall Street Journal*, October 24, 1903.
[55] See Table 2.

1897 was a neighborhood of equilibrium for all the various cycles. Hence the 1897-1904 merger movement is twice-blessed: it fits both a statistical and a theoretical model. But this explains neither its form nor scope. Here the literature relies heavily on institutional factors: (1) The Sherman Act of 1890 made collusion illegal and put an end to the trustee device, thereby forcing industrialists seeking market control to resort to complete fusion of their separate companies. (2) The 1880's marked the development of the modern capital market, a prerequisite to the flotation of large issues of securities. (3) Important changes in state incorporation laws also occurred during the 1880's—the requirement of unanimous agreement of stockholders was eliminated, limitations on capitalization and area of operation were relaxed, and restrictions on mergers were removed. This was useful groundwork. The passage of the Holding Company Act by the State of New Jersey in 1888, with subsequent further liberalizations of the act in 1889, 1893, and 1896, provided the capstone. (4) The *Northern Securities* decision made it evident in 1904 that the merger avenue to monopoly was also closed.

Hence, both economic and institutional factors were favorable for a merger movement of some kind sometime after the mid-1880's. Conditions were particularly favorable for several years following 1896. The collapse of the stock market and the *Northern Securities* decision of 1904 brought these favorable conditions to an abrupt end. Those who seek a more rigorous formulation of causation than this will probably have to go beyond the existing body of merger literature.

4. *The 1919-1930 Merger Movement*

No one has yet written the "Truth about Mergers" for the 1920's. For the most part the small body of literature on the movement that does exist is cast in fairly dispassionate tones. It condemns with restraint the "devouring octopuses," the "bloodsuckers of competition," and the "pillagers of enterprise" who allegedly had wrought such irreparable damage a quarter of a century earlier, and praises with less ardor the handiwork of those who sought to build pillars of economic efficiency.[56] In comparison with mergers and combina-

[56] It should not be inferred from this that economists are in full agreement on either the intensity or the social significance of merger formation during the 1920's. Dewing views merger as a subordinate feature of the rising tide of business that culminated in 1929. (See Dewing, *The Financial Policy of Corporations*, as cited, p. 929.) On the other hand, Stocking and Watkins view the period as having "practically duplicated the situation at the turn of the century. . . ." (See G. W. Stocking and Myron W. Watkins, *Cartels or Competition?* [Twentieth Century Fund, 1948], p. 16, note 11.)

tions of the 1890's, those of the 1920's were much less spectacular. Accordingly, they were described in less picturesque language.

This does not mean, however, that the second wave of mergers was completely dwarfed by its predecessor. On the contrary, in absolute numerical terms it was larger in size. Between 1919 and 1930 nearly 12,000 public utility, banking, manufacturing, and mining concerns disappeared from the American economy through mergers, more than twice the number of *plants* absorbed in all the industrial combinations recorded up to 1904 (see Table 5). The 11,852 absorptions included approximately 2,100 mergers, or about five times the number of mergers recorded for the earlier wave. Moreover, between

TABLE 5

Concerns Disappearing from Manufacturing, Public Utilities, and Banking, 1919-1930

	Number of Firms in Operation, 1929 (1)	*Number of Concerns Disappearing*		*Per Cent of Total Concerns Disappearing* (4)
		1919-1928 (2)	*1919-1930 (estimated)*[a] (3)	
Manufacturing:				
Food	57,500	835	1,120	1.9
Metals	27,900	1,770	2,373	8.5
Lumber and paper	47,800	419	562	1.2
Chemicals[b]	8,100	1,175	1,577	19.5
Textiles and apparel	29,700	401	538	1.8
Other (includes mining)	86,563	1,391	1,865	2.2
Total manufacturing (and mining)	257,563	5,991	8,035	3.1
Public utilities	6,355[c]	2,757[d]	n.a.	43.3
Banks (Federal Reserve System)	8,052[e]	1,060	n.a.	13.2
Total	271,970	9,805	11,852	4.4

n.a.=not available.

[a] Assumes mergers occurred among industry groups in 1929-1930 in same proportion as in 1919-1928.

[b] Includes products of petroleum and coal.

[c] Number of reporting establishments in 1922. By 1932 the number of reporting establishments had been reduced to 3,429. See *Statistical Abstracts of the Fifteenth Census*, Bureau of the Census, 1930.

[d] 1928 estimated from data for first three quarters.

[e] 1930.

Source: Concerns disappearing are from Willard L. Thorp, "Facts about the Consolidation and Merger Movement and the Concentration of Industry," *Mergers, Consolidations and Affiliations* (General Management Series 92, American Management Association, 1929), p. 10. Thorp's data for the period 1919-1928 (column 2) were adjusted to include the years 1929 and 1930 (column 3). The number of operating firms in each of Thorp's industry groups in 1929 was calculated from Dept. of Commerce data. See Melville J. Ulmer, "Industrial Patterns of the Business Population," *Survey of Current Business*, Dept. of Commerce, May 1948, p. 15.

1919 and 1929 the number of chain distributors in 26 kinds of business increased from 8,500 to 20,000, and, between 1919 and 1930, 1,591 chains identified with the 26 kinds of business made 10,519 store acquisitions.[57] Hence, by any previously (or subsequently) established standard of measurement, the second wave of mergers was large. Why the literature has left it so completely overshadowed by the 1887-1904 wave of mergers and consolidations, therefore, must be explained on grounds other than its absolute size. There are several obvious reasons.

First, between one-quarter and one-third of the 1919-1930 mergers occurred in industries where the question of monopoly was not applicable. Of 11,852 concerns known to have disappeared through mergers, about 24 per cent were public utility and 9 per cent were banking concerns. While the extent to which banking was left to competitive regulation in the 1920's is not entirely clear, the Federal Reserve Act of 1913 gave member banks something approaching a public utility status. Moreover, all banks were subject to certain regulatory provisions of state banking laws. Public utilities, of course, except in the State of Delaware, had long since been regulated by public authority. Hence, only two-thirds of the mergers involved firms operating in sectors of the economy where competition was expected to regulate.

Second, the larger horizontal mergers, on balance, may well have stimulated as much competition as they stifled. Stigler has characterized mergers during the period as having typically transformed near monopolies to oligopolies;[58] the dominant firm left the field clear for firms of the second and lower levels to launch their own merger programs instead of seeking to regain a lost dominant position for itself. In some cases circular dependency may have replaced dominant firm control; in others it may have replaced moderately independent action; in still others independent action may have replaced dominant firm control. Hence the net effect on competition of the 1919-1930 horizontal mergers is not nearly so clear as that of the large horizontal combinations of the earlier merger movement.

While mergers in the 1920's increased oligopoly, oligopoly provided a motive for no more than a small fraction of them. Merger for oligopoly presupposes an extremely high order of oligopolistic

[57] *Report of the Federal Trade Commission Relative to the Growth and Development of Chain Stores*, S. Doc. 100, 72d Cong., 1st Sess., 1932, pp. 6-7, 61-62.
[58] "Monopoly and Oligopoly by Merger," as cited, p. 31.

rationalization—a much higher order than events or logic can support. The rationale of merger for oligopoly under highly competitive conditions would probably run something like this: (1) Intense price competition is undesirable. (2) It can be eliminated by reducing the many firms in an industry to a few. (3) I know this and all my many rivals know this. Accordingly (4) I will collect a large fraction (say one-sixth) of the industry together by merger, and assume that five of my rivals will do likewise. (5) After the formation of all (six) of the mergers we can rationalize prices. Until more is known about the much simpler phenomenon of pricing among the few, it seems best not to rely upon this line of reasoning for an explanation of mergers.

The above rationale is also partly applicable and equally as unreliable under conditions of near monopoly (the starting point in Stigler's analysis), when the unmonopolized sector of the industry comprises many smaller firms. Moreover, when the dominant firm controls considerably more than one-half of the entire market, oligopoly by merger is impossible. However, if the industry comprises a partial monopolist controlling 50 per cent of the market or less and not many smaller firms, one or several of the latter may prefer oligopoly to complete domination and may also find the transformation relatively easy to perform. Mergers by Bethlehem and Republic in the steel industry, cited by Stigler to support his conclusion, may also be cited here as a case in point. There were others, but the extent to which oligopolies sprang up in the 1920's by the merger route can easily be exaggerated. Of 22 oligopolistic industries studied by Weston, 5 were made oligopolies by court dissolution or by pressure of government investigation, 9 by merger, 5 by internal growth of rivals, and 3 by a combination of internal growth and merger. Accordingly he concludes that mergers, while an important cause, accounted for less than half of the number of oligopolies studied.[59]

Third, mergers of all kinds in the 1920's typically embraced a relatively small proportion of the total firms in their respective industries and, for one reason or another, firms that had not previously competed with each other. The number and per cent of concerns disappearing through merger from each broad industry group appear in Table 5. Although data for broad industrial classifications are not very illuminating, they measure in a rough fashion the incidence of merger activity during the period 1919-1930. In absolute

[59] Weston, *op. cit.*, p. 64.

terms, merger activity in manufacturing was highest in the food, metals, and chemical industries,[60] these three groups having accounted for 5,070 of the 6,170 disappearing firms that can be identified with any particular industry group. However, the proportion of total active firms disappearing was significant in only the metals and chemicals industries (column 4).

The shortcomings of the data shown in Table 5 hardly require elaboration but, until both disappearances and census data have been broken down into much finer classifications, quantitative measurement of the effect of the 1919-1930 merger movement on the structure of all industries can proceed no further. Other data scattered throughout the literature, however, suggest the effect mergers had on the structure of some of them. In the food industries, merger-created firms were largely of the chain- and conglomerate-firm variety. National Dairy, General Foods, General Mills, and several bakery chains—Continental, Ward, and Purity—all date from this period. In the copper industry, mergers extended vertical integration. In 1922 Anaconda merged with American Brass; the merger subsequently acquired other finished goods producers, notably the Detroit Brass and Rolling Mills. In 1929 Kennecott Copper acquired Chase Companies, Inc., Phelps-Dodge acquired Habirshaw Cable and Wire and the American Tube Works in the early 1930's. In chemicals, where Allied Chemicals and Dye and Du Pont are the best examples, mergers were mostly of the conglomerate firm type.

While such illustrative cases permit no sweeping generalizations, they suggest that a large portion of the mergers formed in the 1920's brought together firms producing totally different lines of products, the same products in noncompeting territories, or firms engaged in different stages of fabrication. They contributed to a concomitant increase in concentration of control of assets,[61] but it is much less certain that, on balance, they measurably affected monopoly power in specific market areas. At least in the dairy industry, where merg-

[60] Stigler concluded from changes in the number of establishments in central offices between 1919 and 1937 that merger activity was highest in the food, paper and printing, and iron and steel products industries. Where similar industrial classifications can be compared, his conclusions are supported by the above data. It should be pointed out, however, that changes in establishments in central offices measure total expansion, and are therefore not very good measures of merger activity for periods when internal growth was significant. "Monopoly and Oligopoly by Merger," as cited, p. 31.

[61] It has been fairly conclusively established that concentration of control of assets increased between 1924 and 1929, the six-year span that includes most of the merger activity associated with the second merger movement. See Adelman, *op. cit.*, p. 285.

ers were particularly numerous, they did not prevent violent outbreaks of price competition in milk production and distribution in the early thirties.[62]

Fourth, the second great wave of mergers was accompanied by a fairly steady decline in price levels, a remarkable increase in the national income, and a rising level of employment. While the writer does not mean to imply that these concomitant phenomena were beneficial effects of mergers, they have long been regarded as incompatible with pervasive monopoly growth.

Fifth, horizontal merger in the 1920's, like that of the earlier movement, was probably increased by major developments in transportation and communication. Between 1910 and 1930 the economy assimilated a new system of transportation—the motor vehicle. In 1910 passenger motor vehicle registrations in the United States totalled only 468,500, and motor truck registrations only 10,000; by 1930 passenger motor vehicle registrations had reached a total of 26,545,281, and motor truck registrations 3,486,019.[63] This new transportation system tended to break down small local markets in two ways: it provided sellers with a new means for extending their sales area, and it made consumers considerably more mobile. The 1920's also marked the rise of the home radio, a medium particularly amenable to advertising national brands. Between 1922 and 1928 the radio audience in the United States increased from 75,000 to 40 million and the value of radios and accessories sold per year, in the face of declining prices, increased by 980 per cent.[64]

Finally, except where mergers were motivated by production and distribution economies (centralized chemical research, chain distribution, etc.) they appear to have been largely inspired by the professional promoter. This explains in part why the merger movement followed the pattern it did. According to Dewing, "In the period before 1929, much more than in the earlier period, consolidations were attempted in order to deal better with merchandising problems. Rubber factories and stationery factories were brought together merely because both rubber goods and stationery could be sold in drug stores, washing powder and breakfast foods because

[62] Cf. *Nebbia* v. *New York*, 291 U.S. 502 (1934), and subsequent cases involving the constitutionality of state regulation of milk prices.

[63] D. Philip Lockin, *Economics of Transportation* (Irwin, 1947), pp. 666-667.

[64] Dwight D. Farnham, "Types of Consolidations and Mergers in America and Europe," in *Mergers, Consolidations and Affiliations* (General Management Series No. 92, American Management Association, 1929), p. 18.

both were found on the shelves of grocery stores."[65] In some cases the promoter could probably give convincing evidence that merger would be profitable, either because it made for lower buying, production, or distribution costs, or because it furthered product differentiation through national brand advertising, or both. In others, where the advantage of merger was not so evident, he found his product more difficult to sell. In such cases promoters (principally investment bankers) resorted to high-pressure salesmanship. Thorp, who has probably devoted more careful study to the period than anyone else, has summed up the merger movement of the 1920's as follows:

"Many mergers, and some acquisitions, involve the flotation of new securities. In periods like 1928 and early 1929, when there is almost an insatiable demand for securities, the merger movement will be certain to flourish. Its most active sponsor is the investment banker. Reputable business houses merely carrying on their business under their existing organization bring a very slight volume of new securities for the banker to handle. But if they can be brought together into a new organization it may mean a large flotation of stock. During 1928 and 1929 some investment houses employed men on commission who did nothing but search for potential mergers. One businessman told me that he regarded it as a loss of standing if he was not approached at least once a week with a merger proposition. A group of businessmen and financiers in discussing this matter in the summer of 1928 agreed that nine out of ten mergers had the investment banker at the core."[66]

This wave, then, like that of the closing years of the 1890's, rode to its peak on a crest of rising stock market prices. While oligopoly (with and without product differentiation) and distribution and production economies undoubtedly motivated some of the mergers, others certainly had promoters' profits as their principal objective. In any case they seem to have given little impetus to monopoly growth, although they are reflected in a concomitant increase in concentration of control of assets. It is not surprising, therefore, that the public's reaction to the merger movement of the 1920's was not more rigid enforcement of the Sherman Act, but the enactment of the Securities Act of 1933, the Securities Exchange Act of 1934, and the Holding Company Act of 1935.

[65] *The Financial Policy of Corporations*, as cited, p. 929.
[66] "The Persistence of the Merger Movement," as cited, pp. 85-86.

5. *The 1940-1947 Merger Movement*

IT WAS stated earlier that researchers on mergers have tended to act like the six blind men of Indostan—on examining different parts they reach different conclusions about the whole. For the most recent merger movement, however, this analogy is not applicable. Two studies have been made of the 1940-1947 mergers, one by the FTC and the other by Butters, Lintner, and Cary.[67] Initially, the two appeared to have reached entirely different conclusions on the effect of recent mergers on concentration although they analyzed almost identical data.[68]

According to FTC's report, 2,450 concerns were known to have disappeared from mining and manufacturing through merger and acquisition in the period 1940-1947 (see Table 6, col. 3). The report emphasized that this was a minimum estimate since it was based on "a sample drawn principally from reports of acquisition of the larger corporations."[69] The Commission's data therefore were incomplete and tended to underestimate the proportion of acquisitions made by small concerns. In textiles, an extreme case in point, its sample showed a total of 154 concerns acquired, whereas *Textile World* showed an additional 388 concerns acquired, most of which represented small-business enterprises acquired by small-business enterprises. Nevertheless, from its sample data summarized in Table 7 the Commission concluded (1) "that the preponderant number of firms have been acquired by the very largest corporations" and (2) "that fully 93 per cent of all the firms bought out since 1940 held assets of less than $5 million, and 71 per cent had less than $1 million of assets."[70]

Just what conclusions on concentration the Commission drew from these data have been a matter of considerable debate. The relevant statements appearing in the report are as follows:

"No great stretch of the imagination is required to foresee that if nothing is done to check the growth in concentration, either the giant corporations will ultimately take over the country, or the Government will be impelled to step in. . . ."[71]

[67] *The Merger Movement, A Summary Report*, as cited; and Butters, Lintner, and Cary, *op. cit.*

[68] For negligible differences in the two sets of data, see John Lintner and J. Keith Butters, "Effect of Mergers on Industrial Concentration, 1940-1947," *The Review of Economics and Statistics*, February 1950, p. 34, note 9 and p. 39, note 23.

[69] *The Merger Movement, A Summary Report*, as cited, p. 17.

[70] *Ibid.*, p. 28. [71] *Ibid.*, p. 68.

TABLE 6

Per Cent of Total Firms Disappearing through Merger and Ratio of Net Increase in Firms to Disappearances, Manufacturing, Mining, and Other, 1940-1947

(*firms in thousands*)

Industry	Firms in Operation 1940	Firms in Operation 1947 (1)	Increase in Number of Firms, 1940-1947 (2)	Total Firms Merged or Acquired, 1940-1947 (3)	Per Cent of Total Firms (1947) Disappearing (4)	Ratio of Net Increase to Disappearances, 1940-1947 (5)
Manufacturing:						
Food and kindred products	54.0	57.0	3.0	.369	.6	8.13
Textiles and apparel	23.5	39.0	15.5	.154	.4	100.65
				(.542)[a]	(1.4)[a]	(28.60)[a]
Paper and allied products	2.5	3.0	.5	.084	2.8	5.95
Printing and publishing	37.7	41.7	4.0	.028	.7	142.86
Chemicals and allied products[b]	7.4	9.8	2.4	.369	3.8	6.50
(Petroleum and coal products)	(.9)[c]	(.9)	(.0)[d]	(.157)	17.4	.00[e]
Rubber products	1.3[c]	1.5	.2[d]	.025	1.7	8.00
Leather products	3.2	5.2	2.0	.019	.4	105.26
Metals and metal products	25.9	49.8	23.9	.241	.5	99.17
Nonelectrical machinery	15.8[c]	17.2	1.4[d]	.167	1.0	8.38
Electrical machinery	3.6[c]	4.1	.5[d]	.105	2.6	4.76
Transportation equipment	3.1[c]	4.2	1.1[d]	.149	3.5	7.38
Lumber and furniture	33.0	64.2	31.2	.050	.1	624.00
Stone, clay, and glass products	5.5	14.6	9.1	.064	.4	142.19
Other manufacturing	[f]	4.8		.036	.8	[f]
Total manufacturing	215.5	316.3	100.8	1.887	.6	53.42
Mining and quarrying	27.2[c]	29.6	2.4[d]	.071	.2	33.80
Other nonmanufacturing	3,161.1[c]	3,502.4	341.3[d]	.104	[g]	3,281.73
All industries	3,403.8	3,848.3	444.5	2.062	.1	215.56
				(2.450)[a]		

[a] Including 388 additional acquisitions reported in *Textile World*.
[b] Includes products of petroleum and coal.
[c] Number of active firms are those reported as of June 30, 1946. Not available for previous years.
[d] Increase between June 30, 1946, and Dec. 31, 1947.
[e] No net increase in number of firms; 157 absorptions.
[f] Cannot be put on comparable basis with 1947.
[g] Less than .01 per cent.

Source: *Survey of Current Business*, Dept. of Commerce, May 1948, and *The Merger Movement, A Summary Report*, Federal Trade Commission, 1948.

"Either this country is going down the road to collectivism, or it must stand and fight for competition. . . . Crucial in that fight must be some effective means of preventing giant corporations from steadily increasing their power at the expense of small business."[72]

"The importance of external expansion [mergers, consolidations, etc.] in promoting concentration has never been more clearly revealed than in the acquisition movement that is taking place at the

TABLE 7

Size of Acquiring and Acquired Concerns, 1940-1947

Size of Acquiring and Acquired Concern in Terms of Millions of Dollars of Assets	*Acquisitions Made by Acquiring Concerns*	*Concerns Acquired*
Under $1	239	1,468
$1–$4	365	455
5– 9	264	58
10–49	590	66
Over $49	604	15
Total	2,062[a]	2,062[a]

[a] Does not include 388 additional acquisitions in the textile industry reported in *Textile World.*

Source: *The Merger Movement, A Summary Report,* Federal Trade Commission, 1948.

present time—a movement which is strengthening the position of big business in several ways."[73]

"The evidence thus points clearly to the conclusion that, insofar as its impact on concentration is concerned, the outstanding characteristic of the current merger movement has been the absorption of smaller independent enterprises by larger concerns."[74]

These statements in the Commission's report appear to add up to an initial conclusion by the Commission that concentration was significantly increased by the 1940-1947 mergers. Accordingly, Butters and Lintner, since their own study led them to a contrary conclusion, announced their results as essentially a reversal of the Commission's findings.[75] Whereupon Blair and Houghton, speaking on behalf of the Commission's report, replied that they had made no general statement about the effect of mergers on concentration and "Indeed, if the Commission had made any general statement on this point, it would probably have concluded, based on its own data, that the recent mergers have *not* substantially increased concentra-

[72] *Ibid.*, p. 69. [73] *Ibid.*, p. 25. [74] *Ibid.*, p. 28. [75] *Op. cit.*, pp. 30-48.

tion in manufacturing as a whole."[76] With the divisions of research in the FTC and the Harvard Business School finally in substantial agreement that the 1940-1947 mergers had little pervasive effect on industrial concentration, the case can fairly be considered as closed. The evidence, however, is worth reviewing.

Data compiled by Butters and Lintner representing acquisitions totaling $3 1/3 billion show that for the 1940-1947 period merger was a more important source of relative growth for small than for large companies. Acquiring companies having assets of $100 million or more had an average growth through merger of 2.3 per cent; companies having $50-$100 million assets had an average growth through merger of 13.8 per cent; the $10-$50 million companies, 18.7 per cent; the $5-$10 million companies, 33.4 per cent; the $1-$5 million companies, 68.1 per cent; and companies having assets of less than $1 million increased their size through merger by 142.3 per cent. From this it can safely be concluded that mergers were a much less important source of relative growth for large companies *that made acquisitions* than for small companies *that made acquisitions.*[77] But what was the effect of mergers on the relative growth of *all* firms in each size class? Here again, the Butters and Lintner data show that the larger the size of firms the less important mergers were as a source of relative growth. If the fairly reasonable assumption were made that the estimated $1 2/3 billion of assets of unreported acquisitions were made largely by firms having total assets of less than $10 million, then *all* companies having assets of less than $10 million expanded through merger by 10.1 per cent, whereas *all* firms having assets of $10 million or more expanded through merger by only 6.3 per cent.

The remaining conclusions reached by Butters and Lintner may be summarized as follows: (1) Virtually all the firms disappearing through mergers and acquisitions for the period 1940-1947 were small companies (a conclusion reached earlier by the FTC). Accordingly, mergers of large firms with large firms, so pronounced in earlier merger movements, did not occur. (2) For all manufacturing and mining the Gini coefficient increased from .809 to .816 through merger, or only .007 in eight years. (3) Among the 1,000 largest manufacturing firms, the lower 500 grew relatively more through

[76] John M. Blair and Harrison F. Houghton, "The Lintner-Butters Analysis of the Effect of Mergers on Industrial Concentration, 1940-1947, A Reply," *Review of Economics and Statistics*, February 1951, p. 67.

[77] Cf. *ibid.*, p. 66.

merger than the upper 500. Within the largest 1,000 firms, therefore, mergers produced some deconcentration.

Data showing the percentage of total firms disappearing through merger from mining and manufacturing and from each major manufacturing group in the years 1940-1947 are presented in Table 6. They support the conclusions reached by Lintner and Butters. In all manufacturing and in 8 of the 15 manufacturing industry groups less than 1.0 per cent of the total number of firms disappeared through merger. In 6 of the remaining 7 groups the number of disappearances through merger amounted to only 3.8 per cent or less of the groups' respective populations. Only in the petroleum and coal products group was the number of disappearances through merger relative to the total firm population significantly high (17.4 per cent).[78] For all industries, the number of firms disappearing through merger amounted to less than 0.1 per cent of the total number of firms in operation in 1947.

In comparison with earlier merger movements, therefore, the 1940-1947 movement was exceedingly small. The individual firms disappearing through merger were small and disappearances were relatively few in number. The average annual number of disappearances in mining and manufacturing for the eight-year period was 258, or barely over one-third the average annual number of disappearances for the thirteen-year period 1919-1931, considerably less than the number of disappearances recorded for any year in the period 1919-1931, and exceeded by only 55 the number of disappearances occurring in the depression year of 1932.

What is more important, however, merger activity in 1940-1947 was dwarfed by other forms of growth. In the eight-year period total assets of mining and manufacturing corporations increased by more than 10 times the estimated $5 billion involved in all mergers in mining and manufacturing. In 5 out of 15 manufacturing industry groups the net increase in the number of active firms between 1940 and 1947 was over 100 times the number lost through merger. Only in the petroleum and coal products industry, where no net increase occurred, was the ratio of the net increase in firms to disappearances through merger less than 5 to 1. In all manufacturing, the ratio of the net increase in firms to the number of firms lost through merger was 53.42 to 1; in mining, the ratio was 33.80 to 1.

[78] This was also the industry group in which acquiring firms showed the *lowest* percentage growth in assets by acquisition. Hence, the 157 absorbed firms must have been extremely small. See Lintner and Butters, *op. cit.*, p. 43.

When viewed against these overriding forces, some doubt is cast upon the propriety of characterizing the 1940-1947 mergers as a "merger movement." Unfortunately, the English language provides us with no descriptive term for movements of a diminutive sort. But if previous (and future) merger movements are still to be associated with waves of mergers, the 1940-1947 movement might be viewed as a ripple.

Judged by their results and the circumstances under which they occurred, the recent mergers patently did not have monopoly as their goal. Furthermore, they were accompanied by no spectacular rise in stock market prices; accordingly, the professional promoter appears to have been conspicuously inactive. Hence two prominent historical motives for merger played little or no part in the formation of mergers during the 1940's. Probably the wartime and postwar flurry of mergers had no pervasive motives at all, other than those associated with conventional business transactions.

Fortunately, this assessment can be carried beyond the stage of mere conjecture. Stigler explains a sizable number of the wartime and postwar vertical mergers in terms of attempts to circumvent price controls and allocations, and supports his conclusions with an explanatory hypothesis.[79] In their careful case-by-case investigation of why firms merged, Butters, Lintner, and Cary found that taxation, management, and investment considerations prompted most owners to offer their firms for sale; the desire for a new product, plant, or production organization, or for greater vertical integration prompted other business firms to buy them.[80] These reasons of course are always operative in varying degrees, and probably accounted for most of the 226 average disappearances per year through merger for the period 1930-1939. It is not so surprising that this annual average should have increased by nearly 15 per cent during the war and immediate postwar years. As Butters *et al.* have shown, high wartime and postwar income and estate taxes and the relatively much lower capital gains tax motivated the sale of about 9.7 per cent of the total number of firms disappearing through merger between 1940 and 1947. Moreover, aside from taxes, vertical integration, and other wartime business considerations, businessmen (and economists as well) during 1940-1947 held widely different views about the economic prospects for the years ahead. Pessimists who

[79] "The Division of Labor is Limited By the Extent of the Market," as cited, pp. 190-191.

[80] *Op. cit.*, pp. 201-240.

foresaw a long postwar recession should have been quite willing to dispose of their stock of assets at prices somewhere below the then prevailing reproduction costs. Contrariwise, optimists seeking additional plants, for whatever purpose, should have been equally willing to buy them at those prices. While it may be argued correctly that this rationale does not explain very much, it should be borne in mind that there is not a great deal to be explained.

6. *Summary of Conclusions on Mergers*

AN EFFECTIVE appraisal of the findings on mergers requires considerable candor. The literature reflects the views of men who stand as much as a half-century apart in time and at opposite ideological poles. To combine the findings of researchers holding opposing ideologies and conflicting preconceptions produces a synthetic logic that will probably please no one. Nevertheless, the synthesis leads to conclusions that all the available data support. It is not expected that all will accept them, but they may serve as a first approximation to the "truth about mergers" until the whole truth is known.

1. Contrary to what is perhaps the most frequently advanced explanation of merger, relatively few mergers appear to have had market monopolization as their goal. Monopoly was unquestionably the aim of about one-fifth of the larger combinations formed between 1887 and 1904, but has played a dormant role over the past half-century. The fact that examples of merger for monopoly appearing in even the current literature are taken exclusively from the 1887-1904 period convincingly confirms this point. Standard Oil, United States Steel, American Tobacco, and others of this era still epitomize the merger for monopoly. Oligopoly had supplanted partial monopoly in at least 22 industries by the 1930's, and had supplanted near-competition in several more. However, merger was the instrument by which oligopoly was fashioned in only 9 of them, and the number in which oligopoly provided the dominant motive for merger was still less.

This does not suggest that merger has resulted in an insignificant amount of monopoly control or concentration. The conversion of approximately 71 important oligopolistic or near-competitive industries into near monopolies by merger between 1890 and 1904 left an imprint on the structure of the American economy that fifty years have not yet erased. Moreover, many mergers obviously not motivated by monopoly nevertheless may have increased concentration and lessened competition. For the sake of historical and statis-

tical accuracy, however, it should be made clear that most mergers left no such imprint.

2. The most important single motive for merger at the peaks of merger movements seems to have been promotional profits. The waves of mergers in 1897-1899 and in 1926-1929 rode to their respective peaks with concomitant rapidly rising stock prices. Both periods were marked by easy money and a securities-hungry public. This environment gave rise to a new type of entrepreneur—the producer of mergers. In some cases the promoter already headed one of the merging firms; in others he came from the outside. Sometimes he combined a sufficient number of firms to significantly affect the industry's structure. More often, as was true of the 1920's, he did not. Original owners were paid sometimes in stock and sometimes in cash. Whatever the differences in scope and procedure, promoter-created mergers appear to have had one common feature—the whole was greater than the sum of its parts. The difference between the two was the promoter's profits.

3. A large number of mergers have been prompted by the prospects of neither monopoly gains nor promoters' profits, but have simply reflected ordinary business transactions among entrepreneurs. Mergers or acquisitions of this sort are one means whereby some entrepreneurs make their exit from an industry, selling their undepreciated assets to other entrepreneurs. The underlying reasons behind such liquidations and acquisitions may be unlimited in number.

Regrettably, the literature on mergers is confined largely to the three merger movements that it identifies. Accordingly little is known about mergers as a normal aspect of business behavior except that they occur all the time. Even in the period 1930-1939 the average number of disappearances annually was 226, just slightly lower than the annual average for the period 1940-1947. Since 1930 most mergers appear to have been of the ordinary business variety in that they had neither monopoly nor promotional gains as their objective. Hence, whether the outcropping of mergers and acquisitions in 1940-1947 took on the size and form of a movement or merely reflected a quickened pace in asset transfers among entrepreneurs is not entirely clear. However, contemporary literature argues in favor of the former.

4. Finally, some mergers have undoubtedly come about as adjustments to major innovations having a rapid and pervasive effect on the entire economy. The principal evidence in support of this conclusion, however, is that if one uses it as a premise, the timing of

intense merger activity is consistent with it: the first great wave of mergers followed a period of rapid railroad building, and the wave of the 1920's came with the rise of motor car and motor truck transportation and a new advertising medium, the home radio. From the logic of comparative costs, it would be expected that these innovations would cause some small local enterprises eventually to give way to larger and more efficient firms. However, mergers and acquisitions could hasten the process.

* * * * *

A half-century ago economists held widely different views on the causes and social significance of mergers and combinations. This is neither discomforting nor surprising. The phenomenon was new and its causes largely unexplored. Each formed his opinion out of his own ideology and out of what he saw; but the early merger movement was big, and no one saw it all.

The mid-twentieth-century student of industrial organization, however, can do far better than choose his flag and wave it vigorously. Admittedly there is much that still is not known about mergers, but if the findings reveal anything, they show that the causes and consequences of merger are complex and diverse. For purposes of framing and administering a public policy committed to maintaining competition, the broad implication of this conclusion is obvious. It means that while some mergers impair a competitive enterprise system, others may be an integral part of it. The choice, therefore, is not whether to condemn or sanction them all, but how to design appropriate criteria for judging which is which. If this essay has served to bring economists into substantial agreement on this point, it will have fulfilled its principal purpose. To those who have had no occasion to review the literature on mergers, recent and past, this may appear as a much less ambitious task than it is.

COMMENT

WALTER ADAMS, Michigan State College

MARKHAM has done a commendable job in surveying the evidence and findings on mergers. He has summarized, digested, and assimilated the major contributions made in this controversial field, and come up with the significant—yet exceedingly modest—conclusion that the "causes and consequences of merger are complex and di-

verse." While Markham's paper is generally beyond reproach, his analysis is subject to some major limitations and criticisms.

1. Markham examines so many divergent aspects of the merger problem, that the central issue—the effect of mergers on concentration—is buried in a welter of detail. He gives inadequate attention to the conspicuous role of mergers in the concentration of economic power, a concentration which, by 1947, found 139 companies owning 45 per cent of all manufacturing assets. Moreover, the effect of mergers on this phenomenal concentration seems to be seriously understated.

The record shows that there were three distinct merger movements since 1890. The first, and largest, lasted from 1897 to 1904; the second, from 1920 to 1931; and the third, from 1940 to 1947. By the end of the first movement 300 industrial combinations covering most major lines of production had been formed. These combinations, according to generally accepted estimates, controlled fully 40 per cent of the nation's manufacturing capital. Of these consolidations 78 controlled 50 per cent or more of their respective industries, 57 controlled 60 per cent or more, and 26 controlled 80 per cent or more.[1] This wave of merger activity was so gigantic as to "give American industry its characteristic twentieth century concentration of control."[2] It was so pervasive in its effects primarily because the consolidations formed during this period "very frequently included most, if not all, of the already largest companies in the industry,"[3] companies which themselves had been formed by mergers between previously leading industrial giants.

It is with a measure of satisfaction that Markham offers the finding that subsequent merger movements were progressively smaller. We are told that in its percentage effect on concentration, the merger movement of the 1920's fell short of the earlier movement, and that the wave of mergers during the 1940's should not even be dignified as a movement but rather be "viewed as a ripple." These conclusions—as Markham readily admits—are not startling. More important, however, they should not give rise to complacency among public policy makers.

[1] George J. Stigler, "Monopoly and Oligopoly by Merger," *American Economic Review*, Proceedings, May 1950, p. 29.

[2] P. T. Homan, "Trusts," *Encyclopedia of the Social Sciences* (Macmillan, 1931), Vol. XV, p. 114.

[3] J. K. Butters, J. Lintner, and W. L. Cary, *Effects of Taxation on Corporate Mergers* (Harvard University Press, 1951), p. 289.

It is undoubtedly true that the assets of the largest companies participating in the earliest merger movement frequently increased by several hundred per cent, while the maximum growth of a $100 million company during the recent movement amounted to no more than 22 per cent. It is true that the effect of mergers has become relatively smaller in the highly concentrated industries. But this is to be expected.[4] The larger the base, the smaller the percentage effect of any change in size. The more highly concentrated the industry, the smaller will be the relative increase in concentration as a result of acquisitions by giant firms. This does not mean, however, that mergers should no longer concern those who regard excessive concentration as a potential danger. It does not mean that we can accept with equanimity even the small increase in concentration which future merger movements may inflict on the economy. Markham could have done us a signal service by emphasizing why the more recent merger movement could not possibly have assumed such gigantic proportions as its predecessors. He might have pointed to the truism that, given the high level of concentration prevailing in 1904, later merger movements were smaller simply because there were smaller worlds to conquer.

2. Markham, because of his uncritical acceptance of the Lintner and Butters findings, offers the unsubstantiated, doubtful, and controverted conclusion that, during the merger movement of the 1940's, "the larger the size of firms the less important mergers were as a source of relative growth." This conclusion is grossly misleading because of two statistical biases in the Lintner and Butters approach.

The first bias, according to Blair and Houghton, "stems from the difference in size of the acquiring firm. Since the average size of the acquired firm bought by smaller companies is about the same as that bought by large companies, . . . the addition of this relatively constant increment inevitably results in a higher percentage figure for small than for large companies. Thus, if each of the size classes had made exactly the same number of acquisitions (assuming a relatively constant size of acquired firm), the percentage gain for this reason alone would have been higher for the smaller than for the larger firms."[5]

The second bias compounds the first and involves using as a base

[4] For a plausible explanation of this phenomenon, see Stigler, *op. cit.*, p. 31 ff.

[5] J. M. Blair and H. F. Houghton, "The Lintner-Butters Analysis of the Effect of Mergers on Industrial Concentration, 1940-1947: A Reply," *Review of Economics and Statistics*, February 1951, p. 65.

only those companies which made acquisitions during the relevant period. Here it is quite clear that mergers were a more important source of growth for the small companies *which made acquisitions* than for the larger companies *which made acquisitions*. What is not established, however, is the fact that small companies *as a group* increased their assets more as a result of merger than did the large companies *as a group*. This, the really crucial question, has not as yet been conclusively answered and remains the subject of controversy.[6] Markham, however, conveys the impression that the controversy has been settled and that "the divisions of research in the FTC and the Harvard Business School finally [are] in substantial agreement."

3. Markham, in following Lintner and Butters, offers yet another conclusion which has doubtful significance and misleading implications. He states that, from 1940-1947, "For all manufacturing and mining the Gini coefficient [of relative concentration] increased from .809 to .816 through merger, or only .007 in eight years," thus implying that relative concentration increased very little during this period. He does not explain the Gini index, nor do Lintner and Butters offer more than a footnote reference to an article by Dwight B. Yntema[7] in which the Gini index is discussed. While the reading of footnote references is not always rewarding, an examination of this one did provide some interesting and significant insights.

First, Yntema repeats Dalton's warning that it is better "not to rely upon the evidence of a single measure, but on the corroboration of several."[8] Then, with the purpose of analyzing the nature of corroboration among six concentration indexes which he considered acceptable (including the Gini index), Yntema selected ten wealth

[6] On the basis of their evidence, Blair and Houghton conclude that: "Mergers of all manufacturing and mining companies, 1940-1947, were a much less important relative source of growth for those large companies which made acquisitions than for those smaller companies which made acquisitions, but were a much more important relative source of growth for large companies as a whole than for smaller companies as a whole." *Ibid.*, p. 66.

Markham, by contrast, contends that during the latest merger movement, "*all* companies having assets of less than $10 million expanded through merger by 10.1 per cent, whereas *all* firms having assets of $10 million or more expanded through merger by only 6.3 per cent." Following Lintner and Butters, Markham bases his conclusion on the assumption that there was an *estimated* $1 2/3 billion of unreported asset acquisitions, and that these acquisitions were made largely by firms with total assets of less than $10 million.

[7] Dwight B. Yntema, "Measures of the Inequality in the Personal Distribution of Wealth or Income," *Journal of the American Statistical Association*, December 1933.

[8] *Ibid.*, pp. 428-429.

distributions and seven income distributions for study. He found that "the expected corroboration among the several coefficients in adjudging the extent of inequality has failed to materialize, since there is little uniformity in the ranking of any one wealth distribution or any one income distribution."[9] The dispersion coefficients agreed in giving first rank to one income distribution, but contradicted each other in ranking the six other income distributions. On the basis of his study, Yntema therefore offered the tentative conclusion that no one index can be considered reliable, and that if a choice between indexes had to be made, three of the six acceptable coefficients were preferable to the Gini index. Yet it was the Gini index which Lintner and Butters used, after citing Yntema as a reference, and which Markham now offers the reader without explanation or reservation.[10]

4. Markham, because of his singular preoccupation with over-all concentration, tends to understate the effect of mergers in *particular industries* and on *particular products*. The emphasis is on the forest, and little concern is shown for the trees—in spite of the fact that some of these have recently grown to be giants. The focus is almost exclusively on aggregates, probably on the assumption that significant concentration in any *one* segment would inevitably affect the general index for *all* segments. Unfortunately this assumption is unwarranted.

The structure of the industrial economy is such that quite a number of important mergers would have to occur in the highly capitalized industries in order to affect significantly the level of concentration in manufacturing as a whole. The fact is that most of the heavily capitalized industries—such as steel, petroleum, etc.—were already highly concentrated prior to the outbreak of the recent merger movement. Under such circumstances it was unlikely that further increases in concentration would take place in these industries. After all, once the conditions of oligopoly have been established, the oligopolists have little opportunity or incentive to extend their degree of market control. As the Federal Trade Commission points out:

"Intensive merger activity can hardly be expected to take place in those industries which have already become so highly concentrated that there remain only a relatively few small competitors still

[9] *Ibid.*, p. 431.

[10] I am indebted to a brilliant young statistician, Ingram Olkin of Michigan State College, for his valuable comments on the various concentration indexes.

available for purchase. It is difficult, for example, to conceive of any further widespread merger activity taking place in such industries as steel, rubber tires, copper, glass, and many other highly concentrated fields."[11]

Granted that this statement is correct, granted also that only through sizable mergers in such fields can the level of over-all concentration be significantly affected, then the real problem becomes: the effect of mergers in industrial fields that were once primarily among the "small business" segments of our economy. Most of these fields—foods, textiles, etc.—have relatively small capitalization as compared to such industries as steel, petroleum, etc. Hence each of these "low-capitalization" industries could become almost completely monopolized without significantly affecting the concentration index for manufacturing as a whole. This is the crucial point which Markham never makes. This is also the reason why Markham's conclusions are potentially a deadly weapon in the hands of the careless public policy student or the special-interest-serving legislator.

Markham is, of course, aware of the concentration trends in many highly competitive industries, especially textiles.[12] There mergers have prominently facilitated the integration movement which, according to most observers, has been almost revolutionary. As one student puts it:

"While some sections of the industry have not been greatly affected, the proportion of the industry now embraced by the large integrated organizations is so considerable as to make them the characteristic form of industrial organization. 'Stabilized competition' . . . is increasingly becoming evident in the major segments of the textile industry."[13]

On another occasion, Markham himself has recognized that, as a result of large-scale integration,

"Many large textile fabric producers now by-pass the intermediate markets between them and the end-product fabricators. In the process, independent converters, selling agents, and commission merchants have lost a large share of their traditional importance. A considerable part of the movement toward combining textile fabric production, converting, and selling may be traced to forward and

[11] *The Merger Movement, A Summary Report*, Federal Trade Commission, 1948, pp. 21-22.

[12] See Markham's excellent article, "Integration in the Textile Industry," *Harvard Business Review*, January 1950.

[13] S. Barkin, "The Regional Significance of the Integration Movement in the Southern Textile Industry," *Southern Economic Journal*, April 1949, p. 395.

backward integration *which resulted from transfers in mill ownership*,"[14] i.e., mergers.[15]

It is now agreed that the merger movement in this industry has resulted in increased concentration. Thus the balance sheet assets controlled by the four largest cotton manufacturers increased from 12.1 per cent of the total in 1937 to 19.6 per cent in 1947. Over the same period their share of total productive capacity rose from 4.9 to 10.7 per cent. In 1947 employment concentration ratios in some segments of the industry were even higher, as for example in cotton (13.2 per cent), woolen and worsteds (28 per cent), and silk and rayon (24 per cent).[16]

While the FTC conservatively states that "it is too early to appraise the ultimate effects of the merger movement on competition in the textile industry,"[17] one of the industry's own trade journals is less reticent. Says *Textile World*:

"Belief is prevalent that the industry is entering an era of larger mill groups and that consequently fewer men will control the majority of its equipment and its products. Some extremists even forecast that the time is coming when a mere five or six companies will dominate the textile field just as has come to pass in the automobile industry."[18]

Similar concentration has resulted from mergers in other "low-capitalization" industries without affecting the concentration index for manufacturing as a whole. Butters, Lintner, and Cary, for example, concede that "the increase in concentration in the broadly defined 'food and kindred products' industry is predominantly attributable to the activities of the four large distilling companies. The acquisitions of these four companies accounted for about one-half the number and assets of all the acquisitions of all companies with assets of over $50 million in the food and kindred products group."[19]

[14] Markham, *op. cit.*, p. 86 (emphasis supplied).

[15] The Cotton Textile Institute estimates that, in the years 1940-1946 inclusive, approximately 20 per cent of the industry's capacity (164 companies owning 4.4 million spindles and more than 88,000 looms) changed ownership. "On the one hand, the basic producers of gray goods [such as Burlington Mills] were expanding forward into finishing operations, while on the other hand, the various fabricators engaged in the latter stages of operation [such as M. Lowenstein & Sons, J. P. Stevens & Co., Ely & Walker Dry Goods Co.] were moving backward into the gray-goods field." *The Merger Movement, A Summary Report*, as cited, p. 55.

[16] See Markham, *op. cit.*, p. 86.

[17] *The Merger Movement, A Summary Report*, as cited, p. 58.

[18] *Ibid.*, p. 58 gives this quotation from the *Textile World*, July 1946, p. 101.

[19] Butters, Lintner, and Cary, *op. cit.*, p. 301.

As a result of this merger activity, the Big Four: (1) substantially enhanced their position with respect to inventories of aging whiskeys; (2) gained control of virtually the entire tight cooperage capacity in the country; and (3) acquired wineries holding approximately half of all the wines then aging.[20] All told, the four leading distillers, as of 1947, held 84.6 per cent of the industry's total assets.

Steel drums are another case in point. The recent absorption of practically the entire industry by the major steel producers is a striking example of how mergers can bring about the almost complete disappearance of a typical small business industry. In the words of *Iron Age*:

"Long, long ago, in 1939, before the words postwar and planning were wedded, the manufacture of heavy steel barrels and drums was a rather volatile business firmly in the hands of a large number of highly individualistic entrepreneurs. Most of these fabricators had started on a precarious shoestring and were justifiably vocal in their pride of success in the classical Horatio Alger Pluck and Luck Tradition. [By 1944, however] . . . the purchase of Bennett Mfg. Co., Chicago, by the United States Steel Corp. pretty well completed the capture of the entire barrel and drum business by major steel producers."[21]

Mergers had placed 87 per cent of barrel and drum capacity in the hands of the steel giants.

To summarize, then, it seems apparent that mergers can have considerable effect on concentration in particular industries and in the manufacture of specific products without affecting the general concentration index for manufacturing as a whole. Since the latter is heavily weighted in favor of the "high-capitalization" industries, a whole segment of the manufacturing economy might be monopolized without producing substantial changes in the over-all level of concentration. Markham would have done well to offer the reader this caveat as a "significance test" for his data on mergers and concentration.

5. Finally, it is regrettable that Markham gives only the scantiest consideration to the influence of public policy (or the lack of it) on mergers. He makes passing reference to the *Northern Securities* case, but fails to mention the crucial *E. C. Knight* decision. Yet it was this decision which provided the first significant test of the

[20] See *The Merger Movement, A Summary Report*, as cited, p. 64; also "The Big Wine Deal," *Fortune*, September 1943.

[21] *Iron Age*, September 21, 1944, p. 103; quoted in *The Merger Movement, A Summary Report*, as cited, p. 46.

Sherman Act's effectiveness in combatting mergers. It was this decision ("manufacturing is not commerce") which reassured lawyers and businessmen that mergers in manufacturing and mining were quite safe under the new law. It was this decision—combined with President Cleveland's subsequent statement that it made trusts a state rather than a federal problem—which served as a powerful impetus to the merger movement of the late 1890's. On the basis of the available evidence it appears that public policy—both the "favorable" ruling in the *Knight* case and the "adverse" dictum in the *Northern Securities* case—had a profound influence on the scope and limits of this admittedly gigantic merger movement. The public policy on mergers during this period might, therefore, have received more prominent attention in the Markham analysis.

Finally, Markham contends that mergers have caused little, if any, increase in over-all concentration during the last twenty years. If we assume, *in arguendo*, that this contention is valid, the implications are rather significant. For it was during this period that Section 7 of the Clayton Act was rendered practically meaningless by the so-called merger loophole. It was during this period that incipient monopolists found it perfectly legal to acquire the assets of competing companies, even if the effect was to substantially lessen competition.

Yet it is argued that concentration during this period did not increase as a result of mergers. If this be so, here indeed is an eloquent testimonial to the dynamism and competitiveness of the American economy. Here indeed is a graphic manifestation of centrifugal forces in the economy—holding their own despite a public policy which left the highway to monopoly unblocked and unguarded. One can only speculate on the degree of *deconcentration* that might have taken place had the merger loophole been closed in 1930 instead of 1950. One can only wonder about the effects of an alternative public policy that would have prohibited, rather than facilitated, the use of the monopolist's favorite instrument for the achievement of market control.

It seems to me that further investigation may well reveal that mergers are not inevitable, either technologically or economically; that they are not merely the product of promoters' dreams and rising stock prices; but rather that their occurrence is intimately connected and inextricably intertwined with the permissive, protective, or promotive policies of government toward the monopolization of the economy.

GEORGE W. STOCKING, Vanderbilt University

I THINK for the most part that Markham's paper reflects a painstaking and discriminating review of the literature, fairness and good judgment in evaluating its findings. He not only reviews the literature but he does some research on his own and adds to our knowledge and understanding of the several combination movements that have characterized American industrial history during the past seventy-five years. On the significance of mergers he comes to the middle-of-the-road conclusion that some mergers have been socially desirable, some have had no effect on market structure or behavior, and some have been socially undesirable. With that conclusion no one will quarrel.

Having acknowledged the generally high quality of Markham's analysis, I shall turn to his specific findings, some of which seem to me to be quite untenable.

FUNDAMENTAL SHORTCOMINGS OF RESEARCH ON MERGERS

MARKHAM recognizes four fundamental shortcomings of research on mergers. First, no theory of mergers has been developed. "Researchers, having no set of hypotheses as a point of departure, have relied principally upon the arts of description and enumeration." A lack of hypotheses, he thinks, has led to the improper conclusion that mergers have generally resulted in monopoly and that monopoly has been their goal. Second, mergers have ordinarily been defined in terms of this objective, with the result that many mergers which neither strove for nor attained monopoly have been ignored. Third, although most merger studies have been designed to throw light on industrial concentration, they have ignored the fact that when a corporation acquires the assets of another corporation for cash, as is sometimes done, this has not increased concentration of control over total assets. The surviving corporation reduces its liquid assets and increases its fixed assets by a corresponding amount; the selling corporation reduces fixed assets and increases liquid assets. Total assets have not changed and control over assets has not been centralized. Fourth, just as a merger may free liquid assets for investment elsewhere, so it is likely to free entrepreneurial talent for application elsewhere.

Within the limits of his assumptions Markham is correct in both these latter points. But in acknowledging that a merger which involves an exchange of liquid for fixed assets increases the concentra-

tion of fixed assets, Markham apparently denies or belittles its relevancy. As he puts it: "If . . . researchers concentrate their attention upon the change in ownership of *fixed* assets attending mergers, the conclusion that mergers increase concentration of control *in some sense* is inescapable." (Last italics supplied.) If a merger should involve *only* a transfer of liquid assets for fixed assets, total assets have, of course, not been changed; but the corporation that no longer has fixed assets has in effect withdrawn from the industry. And that is where Markham leaves it. Meanwhile the firm that increased its fixed assets has presumably increased its share of the market, and that is the significant development in a study of industrial concentration.

In discussing the effect that mergers have on the use of entrepreneurial talent Markham says: ". . . while mergers increase the quantity of assets controlled by the entrepreneurs of *surviving* firms, they also free entrepreneurs to create new firms with new assets elsewhere." (Italics supplied.) Here he clearly implies that mergers reduce the number of firms and concentrate assets, as indeed he does in developing the point that they don't, when he says: "Where one corporation acquires the assets of another for cash . . . , the *surviving* corporation simply reduces liquid assets and increases fixed assets by a corresponding amount; the *selling* corporation reduces fixed assets and increases liquid assets." (Italics supplied.) This apparently implies that only one firm *survives*. If so, inevitably the total assets in the industry have been concentrated. This may sound like a retreat to logomachy, but actually it strikes at the heart of an issue: Do mergers within a particular industry *tend* to concentrate the control of assets in that industry? I believe they do, and I infer that Markham recognizes that they do. Exceptions, I believe, would be rare.

Markham's criticism of researchers on mergers for their failure to proceed from and test formal hypotheses seems plausible enough. This would be the scientific method. And its more frequent use by social scientists might contribute to a more orderly analysis of their problems. But while its use may contribute to the discovery of truth, it does not guarantee it. Social scientists deal with far more complex phenomena than do physical scientists and they are less well equipped to do their job. When men deal with social phenomena, they are themselves a bundle of preconceptions. I doubt that students who have relied on description and enumeration in their study of the early combination movement and concluded that the movement had

monopoly as its goal would have saved themselves from this conclusion merely by having adopted it as an hypothesis to test. Testing such an hypothesis involves definition, classification, and counting. Defining and classifying involve judgments, and as Alexander Pope put it,

> 'Tis with our judgments as our watches; none
> Go just alike, yet each believes his own.

Judgments of social phenomena are influenced by one's conception of "the true, the good, and the beautiful." Monopoly is generally associated with evil; bigness, with either good or evil, depending on one's preconceptions. Bigness may approach monopoly. How far must it go to get there? That depends on the judge. A skilled craftsman can prove that in every log there is a beautifully sculptured Madonna. His conception of beauty, his skills and tools are such that to get inside the wood he carves the statue.[1]

Having indicated the basic shortcomings of the literature on mergers, Markham examines the widely held notion that mergers are "timed closely with the business cycle." To do this he compiles a merger time series based on Conant, Watkins, the Bureau of the Census, Moody, and Thorp and correlates his series with the peaks and troughs of reference cycles. He concludes that "these data do not give strong support to the thesis that merger cycles are timed closely with business cycles." He then summarizes Weston's findings on the relation of merger activity to industrial production, to the index of wholesale prices, and to the Dow-Jones index of stock prices and cautiously and tentatively accepts the conclusion that rising security prices stimulate merger activity. With somewhat less caution he infers from these statistical relationships a motive for mergers—the desire of promoters to profit through asset revaluations. Recognizing that "causal relationships . . . are difficult to infer from statistical analysis," however, and that each merger movement may possess unique features, he analyzes in turn each of the major merger movements—1887-1904, 1919-1930, and 1940-1947— not merely to ascertain their causes, but to determine their impact on the structure of the economy.

THE GREAT COMBINATION MOVEMENT: MOTIVES FOR MERGER

IN ANALYZING the first and greatest merger movement, 1887-1904, he

[1] See Nicholas Georgescu-Roegen's comments on Guy H. Orcott's "Toward Partial Redirection of Econometrics," *Review of Economics and Statistics*, August 1952, p. 211.

concludes, and I believe correctly, that of all the "forces unleashed in the latter part of the nineteenth century that tended to make for larger size and greater concentration, the industrial combination was probably the most important." Proceeding on the assumption that motives may be inferred from results, he turns from the general to the particular. In doing so he analyzes and, on a basis of some independent research, amends the findings of Shaw Livermore[2] and John Moody.[3] Markham finds that "out of every 5 mergers ostensibly monopolistic in character, only 1 resulted in considerable monopoly control." And from this he observes that either of two conclusions is inescapable: "(1) if the purpose of *all* mergers was monopoly power, 4 out of every 5 were unsuccessful in obtaining their initial objective, or (2) many mergers were formed for other purposes." (Italics supplied.)

The other purpose which he thinks was predominant was to make money by promoting mergers. "The literature," he finds, "provides convincing evidence that the abnormally large volume of mergers formed in 1897-1900 stemmed largely from a wave of frenzied speculation in asset values." It brought forth a new type of entrepreneur—the maker of mergers who sought not monopoly but promoter's profits.

LIVERMORE ON MERGERS FOR MONOPOLY

IN THIS and many of Markham's other generalizations I find little with which to quarrel. It is the preciseness of his conclusion on the role of monopoly in mergers that disturbs me. His finding that only one-fifth of the mergers in the early combination movement achieved power over the market is a neat and comforting figure to those who frequently argue that there is little evidence that mergers have made the American economy less competitive, and I would not be surprised if this figure became a part of the folklore of students of industrial combination. If it does, I think the finding will have done a disservice. Therefore I wish to examine it minutely and critically. As originally presented in his paper before the Princeton Conference, Markham's conclusion rested wholly on Shaw Livermore's study of the financial success of industrial mergers. Livermore was not primarily interested in the objectives of mergers but in their consequences. Since the merger movement at the turn of the century

[2] Shaw Livermore, "The Success of Industrial Mergers," *Quarterly Journal of Economics*, November 1935, pp. 68-96.

[3] John Moody, *The Truth about the Trusts* (Moody Publishing Co., 1904).

has been so intimately associated with the monopoly problem, he included in his study only mergers that gave rise to firms with sufficient power to influence their respective markets. He omitted mergers that at the outset could clearly be recognized as nonmonopolistic. Starting with 409 mergers he dropped "*more* than seventy . . . as not being true mergers in any sense of that term, as formed prior to the period under examination, as foreign corporations, or as obviously included by error."[4] After a more careful analysis of the remainder, he divided them into a primary group and a secondary group. The firms in the secondary group, although formed by merger, were later "little different from thousands of other corporations."[5] The primary group constituted *somewhat less than half of the total.* This primary group, presumably consisting of about 156,[6] Livermore characterizes as "mergers with power enough to influence *markedly* conditions in their industry." (Italics supplied.) I take this to mean mergers achieving power over the market; and, although I would attach no importance to the specific figure, I would conclude from Livermore's analysis that almost 50 per cent of his original list of "true" domestic mergers formed between 1888 and 1905 achieved what may be loosely described as "monopoly power."

Markham read the record differently and based his initial calculation of one-fifth on what to me is a baffling statement. Livermore's full characterization of the primary group is as follows: "Somewhat less than half [that is, of all his true domestic mergers] could rightfully claim to be mergers with power enough to influence *markedly* conditions in their industry; of these a select minority possessed, before 1910, any considerable degree of monopoly power."[7] (*Sic*, italics supplied.) The last clause of this statement obviously does not say what it means and what it means, therefore, is conjectural. But two other statements which Livermore makes indicate rather clearly that the last clause of the above-quoted sentence should have read: "of these *only* a select minority possessed, *after* 1910, any considerable degree of monopoly power." For at page 76 Livermore states: "The criticism [that the success of mergers was due to the exercise of monopoly power] is seen not to be fair if it be recalled

[4] Livermore, *op. cit.*, p. 71. (Italics supplied.) Markham reduces the 409 by 70 to get 339.

[5] *Ibid.*, p. 72.

[6] Livermore's carelessness in manipulating simple statistical data is reflected in his references to this primary group at various places in his discussion as numbering 157 (p. 72), 159 (p. 75), 155 (total in his Table 1, Appendix A), and 156 (total in his Table 1 in text, p. 75).

[7] *Ibid.*, p. 72.

that monopoly power was largely lost *after* 1910, except for a handful of companies . . . , by the growth of new competition or because of legal interference." And again at page 90, he says: "Nor was monopoly power, *after* the first decade, the means by which earnings were obtained." (Italics supplied.) Markham, as he presented his paper at the Princeton Conference, paraphrased Livermore's enigmatic statement to read: ". . . only 155 had resulted in the creation of firms with enough power *markedly* to *influence the market*, and only a select minority of these had obtained before 1910 any *considerable degree of monopoly control.*" Reasoning correctly that a "select minority" must be less than one-half (of 155), Markham reached his conclusion that only one "of every five mergers ostensibly monopolistic in character [of the total of approximately 339] . . . resulted in considerable monopoly control."

To clear up the enigma which my criticisms raised, Markham wrote Livermore, asking him to explain the difference between mergers "with power to influence markedly conditions in their industry" and mergers with "any considerable degree of monopoly power." Livermore, seventeen years after his original confusing statement, in a letter dated September 29, 1952, cleared up the enigma in the ingenious manner set forth in Markham's footnote 39. Whether this is a tribute to a lively imagination or to a remarkable memory, the wayfaring reader may decide. But to me it is a slender reed on which to rely. And Markham appropriately discarded it.[8]

MARKHAM ON MERGERS FOR MONOPOLY

BUT he did not discard the one-fifth. On the contrary, he has made a valiant effort to establish it by his own independent research. I think he has failed. The job he set himself was to classify—more accurately, to reclassify—and count. His counting can be no more accurate than his classifying. Reclassifying the combinations of a half century ago as monopolistic or nonmonopolistic without having

[8] Markham has appropriately quoted Livermore on Livermore; I also should like to do so. In *Business Organization and Public Control* (2d ed., Van Nostrand, 1941), jointly authored by Livermore and Charles S. Tippetts, at page 472 the authors make it indisputably clear that Livermore in his earlier article, "The Success of Industrial Mergers," had found that approximately one-half of all his mergers had in Livermore's judgment achieved monopoly power, for about these mergers they state: "Two groupings were made: one of 156 companies included all concerns which attained some degree of dominance in their respective industries, and perhaps corresponded to the popular conception of trusts; the other consisted of remaining minor consolidations, which never achieved the prominence necessary to the exercise of *real* control." (Italics supplied.)

made detailed case studies or discovered new evidence is apt to be illusory, the more so since neither Moody nor Markham clearly states his standards for classifying. Apparently Markham accepts control of 40 per cent of output as the dividing line between monopolistic and nonmonopolistic combinations.[9] Some may question the validity of this. It is of course arbitrary and its justification might well depend on the structure of that portion of the industry remaining outside the combination. But in judging the validity of Markham's classification I shall accept this standard.

Markham takes Moody's list of trusts as his point of departure. He finds plenty wrong with it. Foremost is the vagueness and unreliability of Moody's sources. But Markham's sources are also vague and I fear not always reliable, and his procedure at times seems arbitrary. He finds that "the evidence that Moody's estimates greatly exaggerate the extent of control obtained by 19 of . . . 70 mergers is sufficiently strong to warrant dropping them from the monopoly group." In dropping them Markham relies on "census data and other evidence." What other evidence, he does not specify, nor does he cite census sources. He drops American Hide and Leather, characterized by Moody as "the upper leather trust," incorporated May 3, 1899 to consolidate the plants and business of twenty-two companies operating fourteen plants in New England and eight in New York, Wisconsin, and Illinois. Moody states that at the time of consolidation the companies "*were said* to represent 75% of the upper leather business of the United States."[10] (Italics supplied.) That obviously is not very convincing authority. Markham apparently rejects it because of its vagueness and because "the merger brought together only 22 of 407 establishments producing upper leather in the United States at the time of the merger." That it had only 22 of 407 establishments is not to me a convincing reason for deciding that American Hide and Leather had less than 40 per cent of the market for upper leathers. Obviously the relative size of the establishments and of the markets they served are the critical factors and on these both Moody and Markham are silent.

Moody characterizes United States Leather Company, incorporated February 25, 1893, as "the leather trust." He finds that U.S. Leather acquired twenty-five plants controlling from 60 to 75 per cent of the "industry."[11] Moody does not define "industry," but we

[9] See Markham, note 42 and text just above.

[10] Moody, *op. cit.*, p. 225. Moody later states that at the time of writing (1904) the proportion of the industry controlled was "now about 55%," p. 226.

[11] *Ibid.*, p. 281.

know that U.S. Leather was the country's leading producer of sole leather. According to Lewis H. Lapham, its vice president, who testified before the Industrial Commission about eight years after U.S. Leather was organized, it initially acquired "perhaps one-half of the sole-leather business of the United States" and at the time of his testimony had about the same percentage.[12] In the light of this testimony I do not understand why Markham drops U.S. Leather from the monopoly group. He offers no explanation, merely stating that Moody "erroneously" listed it as having obtained more than 40 per cent of its market.

Moody characterizes International Steam Pump Company, incorporated March 24, 1899, as "the steam pump trust." He finds that International consolidated ownership of seven companies specializing in steam pumps and that it controlled 90 per cent of "the steam pump industry."[13] International also produced products other than steam pumps and according to Moody accounted for 80 per cent of "heavy steam power machinery of all kinds."[14] Moody characterizes Allis-Chalmers, which consolidated four firms—two with plants in Illinois, one with a plant in Wisconsin, and one with a plant in Pennsylvania—as "the machinery trust" and states that the new company controlled about 50 per cent of this "industry." This industry Moody describes as consisting of "heavy machinery, such as steam power engines, mining machinery, rock and ore breakers, cement, saw mill and flour mill machinery, etc."[15] Markham, ignoring Moody's statement that International produced 90 per cent of the country's steam pumps and assuming that "heavy steam power machinery of all kinds" is identical with "heavy machinery, such as steam power engines, mining machinery, rock and ore breakers, cement, saw mill and flour mill machinery, etc.," incorrectly concludes that either International or Allis-Chalmers must be dropped from the monopoly classification. Moody does not regard these categories as identical, and Markham offers no evidence that they are. Lacking evidence that they are, we have no basis for challenging Moody's percentages and hence no basis for dropping either company.

And so it goes. I have not checked Markham's authority or evidence for reclassifying each of the nineteen combines which he charges Moody with having erroneously classified. Indeed I could

[12] *Report on Trusts and Industrial Combinations*, Industrial Commission, 1909, Vol. XIII, p. 686.

[13] Moody, *op. cit.*, p. 256. [14] *Ibid.*, p. 257. [15] *Ibid.*, pp. 209-210.

not do so, because Markham does not cite specific authorities or offer specific evidence for most of them. But I have checked enough of them to conclude that the one-fifth figure at which he has been aiming is a shaky target. He has not hit it.

Moreover, Markham's conclusions at best are based on counting, not weighing. The percentage of mergers that achieved power over the market is not a very significant figure to students of industrial structure. I agree with Markham that probably none of the available lists of mergers is all-inclusive. They scarcely could be since they purport to include only mergers of significance to market structure and behavior. By searching for all the unrecorded little mergers, "the cats and dogs," and thereby increasing your denominator without increasing your numerator (those achieving monopoly power), you could progressively reduce the percentage of mergers that sought or achieved monopoly power; but the more mergers you found the less significant your figures would be to the influence of mergers on industrial structure.

I do not want to do Markham any injustice in making these comments; and I hasten to add that if students of his paper exercise the commendable caution that he does in evaluating the significance of his findings, his findings will have helped, not hurt, in understanding motives for mergers. He recognizes that the motives are often complex, and he is probably correct in concluding that by sheer count most mergers have not acquired monopoly power. But, as he points out, the merger movement "between 1890 and 1904 left an imprint on the structure of the American economy that fifty years have not yet fully erased." With this I agree, although I believe it is an understatement. But it is not an understatement that some students will recognize as such.

EFFECT OF THE GREAT COMBINATION MOVEMENT ON CONTEMPORARY INDUSTRIAL STRUCTURE

LIVERMORE and Tippetts think that the influence of the great combination movement on contemporary industrial structure has been exaggerated. As they put it, "The *continued* importance of the mergers created in 1888-1905 . . . has not been generally understood by the public."[16] And they point out that only 40 to 45 per cent of the 100 largest industrial corporations of any year since 1925 were originally created during the great merger era. To get even a percentage this large, they count each successor of the oil and tobacco

[16] Livermore and Tippetts, *op. cit.*, p. 474. (Italics supplied.)

combinations as a separate large company. As indeed they should. But having first done so, they then reject this procedure. They find that by counting them "genealogically as derived" from one merger they can reduce to one-third the percentage of contemporary large industrial corporations originating in the first great combination movement. And this they do. Finding further that only 5 per cent of our "largest" industrial companies are the result of mergers since 1905, they conclude that well over half of "our largest industrial companies today are the clear *result of 'natural' growth by reinvestment of their own profits.* . . ."[17] I think this statement inaccurate and misleading. In refuting it, I also have done a little counting. Such counting involves judgment; and with my preconceptions what they are, I count differently than do Livermore and Tippetts. I have taken Berle and Means' list of the 100 largest industrial corporations and classified them as having originated in mergers or having got into the list wholly because of internal growth. I find that 75 of the 100 originated or grew substantially by merger, and most of them originated during the 1888-1904 period. The discrepancy between Livermore and Tippetts' findings and mine is explained partly but not wholly by their treatment of units segregated from their parent by antitrust proceedings, e.g. the several Standard Oil companies. Since each of these achieved the dominant position it now occupies in its limited market area under the parent company's ruthless determination to dominate the entire national market by buying out or killing off competition, I see no reason for not treating each included in the "100" list as having originated by merger. Livermore and Tippetts do not reproduce the statistical data on which they based their calculation. Nor do I. My classification is based in part on secondary sources, e.g. Moody's *The Truth about the Trusts*, and in part on independent research. I do not attach much importance to my precise figure of 75 per cent. But I attach less importance to Livermore and Tippetts' contradictory figure that well over half our largest industrial companies (as of 1932, the date of the first edition of their book) are the clear result of " 'natural' growth by reinvestment of their profits." In truth, I fear this idea is also becoming a part of our folklore. Jacoby, for example, in discussing the relation of mergers to the contemporary size of our giant corporations states:

"Another fundamental misconception is that business mergers have been the most important cause of the growth of giant enter-

[17] *Ibid.*, p. 475.

prises and industrial concentration. A forthcoming empirical study demonstrates, to the contrary, that between 1905 and 1948 two-thirds of the increase in the total assets of the largest American manufacturing corporations in the most highly concentrated 'industries' was due to internal growth and that only one-third was achieved through acquisition of assets from other firms. Prohibition of *all* business mergers between 1900 and 1948 would have changed only to a minor extent the degree of concentration found in these industries in 1948."[18]

This statement may be accurate but it is misleading. Jacoby's reference is to J. Frederick Weston's study, *The Role of Mergers in the Growth of Large Firms.*[19] Weston does indeed conclude that only "approximately one-fourth of the growth of the 74 firms studied was *directly* accounted for by mergers. If assets of the initial year for firms which were formed by combinations are classified as acquisitions, about one-third of the growth then becomes external growth."[20] (Italics supplied.) But Weston does not come to the uncritical conclusion that internal growth has been the major cause of industrial concentration. He recognizes that the first merger movement led to a high degree of concentration in a great many industries and that "although the *absolute* size of present day oligopolists is due only in small part to either earlier or later acquisitions, the *relative* position of these firms is accounted for mainly by the merger movement at the turn of the century."[21] Weston also recognizes that although the combined assets of original mergers today represent a relatively small part of the total assets of the merged companies, if the merger movement had not taken place, the assets of the many separate companies that were combined might well have shown a rate of growth comparable to that of the combination; and he recognizes that in the absence of the merger movement assets as large as those now under the control of a single company might well have been under the control of as many companies as went into a particular merger. In short, he recognizes that the potential internal expansion of each of the merged companies has been merged into the actual internal expansion of the combination and, hence, that the merger may be indirectly responsible for the overwhelming size of many present-

[18] Neil H. Jacoby, "Perspectives on Monopoly," *Journal of Political Economy*, December 1951, p. 526.

[19] J. Frederick Weston, *The Role of Mergers in the Growth of Large Firms* (University of California Press, 1953).

[20] *Ibid.*, p. 30.

[21] *Ibid.*, p. 49.

day corporations which ostensibly have grown primarily by internal expansion.

NUTTER ON MONOPOLY

WEIGHING, I repeat, is more important than counting in determining the significance of the early combination movement to industrial monopoly. In this regard Nutter found that as early as 1899 (before the great combination movement had spent its force) monopolistic industries accounted for 32 per cent of the total income derived from manufacturing in the United States and about 40 per cent of the income derived from mining.[22] I do not regard Nutter's findings as definitive. His definition of monopoly is necessarily a loose one and his classification of industries involves judgment. Students familiar with Nutter's work will recall that he compares the extent of monopoly in 1899 with the extent in 1937. In both years he classifies coal and petroleum (which he lumps together) as competitive industries. In view of the controls which state and federal governments had set up over petroleum production (in 1937 in Texas, which accounts for almost one-half the total domestic production of crude oil, the Texas Railroad Commission determined the right to drill, the location of wells, and the allowable production for each well), to classify it as competitive in 1937 seems to me indefensible. Its classification as competitive in 1899 is certainly more logical, inasmuch as Standard Oil of New Jersey had never accounted for more than 23 per cent of the domestic crude oil output in any one year. Nevertheless, Standard, as the largest purchaser of crude oil, controlling virtually all the country's pipelines and refining and marketing about 90 per cent of the country's domestic output of petroleum products, must have exerted a great influence over oil prices. If petroleum were shifted to the monopoly category in Nutter's classification, it would have increased significantly his figures on the extent of monopoly in mining. Students in evaluating Markham's finding that only one-fifth of the mergers in the period 1888-1904 obtained monopoly power should bear in mind Nutter's findings, inadequate though they may be, that 32 per cent of the total income derived from manufacturing and 40 per cent of the income derived from mining originated in monopolistic sectors of the economy. Nutter, of course, was not measuring the effect of mergers on industrial structure but the extent of monopoly, however achieved. It is a safe

[22] G. Warren Nutter, *The Extent of Enterprise Monopoly in the United States, 1899-1939* (University of Chicago Press, 1951), Table 9, p. 40.

bet, however, that in manufacturing and mining as of 1899 virtually all "monopolies" had achieved their power through mergers.

THE ROLE OF THE PROMOTER

MARKHAM emphasizes the role of the promoter in both the first and the second merger movements and thereby performs a service to industrial history. He is undoubtedly on sound ground in concluding that corporate promotion and stock market speculation as a business had a great deal to do with the scope and the duration of these merger movements. But it is risky to infer that because mergers take place in periods of rising stock values, the opportunity to make money by promoting mergers is the basic cause of mergers. Whether you accept the hypothesis that the primary object of the first combination movement was to restrict competition by concentrating control over industry or prefer the hypothesis that it was to make money by promoting mergers, you must recognize that the best time to realize either goal is during a period of rising stock prices. Either hypothesis is consistent with Markham's findings. Actually, as Markham at times recognizes, the motives are complex. It is therefore difficult—and perhaps unrewarding—to try to separate them. The investment banker has frequently played the dual role of promoter and stabilizer.

Edwards makes this clear in discussing developments in the railway field.[23] By the late 1880's many railway lines had been consolidated into railway systems. Investment banking houses had played an important role in this development. But ruthless competition had wrecked many a road, and railway securities had accordingly suffered. To remedy this situation, in January 1889 J. P. Morgan invited the leading railway executives and the leading investment bankers to his Madison Avenue home to discuss the problems of the railway business. At the conclusion of the meeting he made the following significant public announcement:

"I am authorized to say, I think, on behalf of the banking houses represented here that if an organization can be formed practically upon the basis submitted by the committee, and with an executive committee able to enforce its provisions, upon which the bankers shall be represented, they are prepared to say that they will not negotiate, and will do everything in their power to prevent the negotiation of, any securities for the construction of parallel lines, or the

[23] George W. Edwards, *The Evolution of Finance Capitalism* (Longmans, 1938).

extension of lines not approved by that executive committee. I wish that distinctly understood."[24]

Edwards in commenting on this development states: "The financial press of the time referred to this meeting as 'the bankers' triumph and the presidents' surrender.' This conference signified the transfer of control of the railroads from the hands of the industrial capitalist to those of the investment banker."[24]

The professional promoter and more particularly the investment banker, both of whom played a prominent role in organizing and financing mergers in the late 1890's, were undoubtedly interested in making money by selling securities; but the investment banker was also interested in stabilizing security values by stabilizing markets. This is clearly indicated in the organization of the United States Steel Corp. The twelve concerns that went into United States Steel were themselves consolidations. It was a combination of combinations. Several of the original concerns had obtained a large proportion of the country's total capacity for producing the particular products each made. Some were partially integrated. Shortly before the birth of United States Steel, several of the leading consolidations had projected expansion programs each into the market of the other. The bankers precluded an impending "battle of the giants" by uniting these rivals in a single control. In doing so they reaped promotion profits estimated at $62,500,000. Obviously, here both control of the market and promotion profits played important roles. This of course is a dramatic case and certainly not typical. But, although it may sound like the rattling of old bones, it should make clear the risk in attributing any merger to a single motive.

THE 1919-1930 MERGER MOVEMENT

IN DISCUSSING the significance of the merger movement of the 1920's to market structure and behavior, Markham draws six conclusions: (1) from a fourth to a third of the mergers of this period were in fields for the regulation of which society does not rely on competition—banking and public utilities; (2) the larger horizontal mergers may on balance have stimulated rather than stifled competition; (3) the mergers typically embraced relatively small firms in their respective industries and for the most part these firms had not previously competed; (4) the movement was accompanied by a fairly steady decline in price levels; (5) improvements in transportation and communication encouraged the movement; and (6) when not

[24] *Ibid.*, p. 174.

initiated by production and distribution economies, the mergers were largely inspired by professional promoters.

On observations 1 and 5 I make no comments. The others, I believe, involve judgments as well as facts; and with the implications of the judgments some students may not agree.

I for one do not believe that Markham's discussion warrants his generalization that the larger horizontal mergers on balance may have stimulated rather than stifled competition, or indeed that it warrants any generalization on this issue. Moreover, his discussion of this issue confuses me somewhat. Markham criticizes Stigler's thesis that the 1919-1930 merger movement transformed markets dominated by a single firm into oligopolistic markets, largely on the grounds that the movement was not deliberately designed to create oligopolistic market structures. But he apparently accepts Stigler's conclusions that a decrease in the relative importance of dominant firms and a growth through merger of rival firms made 1920 markets oligopolistic rather than monopolistic, and he apparently infers from this that competition may have been intensified. But he also challenges the idea that the oligopolistic market structures created in the 1920's were primarily the product of mergers. As he puts it: ". . . the extent to which oligopolies sprang up in the 1920's by the merger route can easily be exaggerated." I agree. To support this observation Markham cites Weston's study, stating:

"Of 22 oligopolistic industries studied by Weston, 5 were made oligopolies by court dissolution or by pressure of government investigation, 9 by merger, 5 by internal growth of rivals, and 3 by a combination of internal growth and merger. Accordingly he concludes that mergers, while an important cause, accounted for less than half of the number of oligopolies studied."[25]

This summary represents, I believe, an unwitting misuse of Weston's findings—findings which themselves are not wholly accurate. In the first place, Weston is not concerned specifically with mergers *during the 1920's*. His is a broader question: How did each of 22 oligopolistic structures in the contemporary economy get that way? The 5 industries in which he finds that oligopoly resulted from dissolution decrees or government investigation and the pressure of public opinion are: tobacco, agricultural implements, petroleum, corn products refining, and aluminum.[26] While economists generally will probably accept Weston's characterization of these industries as

[25] See Weston, *op. cit.*, pp. 35-37. [26] *Ibid.*, Appendix E, Table 14.

oligopolistic, some students of industrial history will recognize, as Markham fails to do, that developments during the 1920's are not responsible for their basic structure; and some will deny that mergers did not have a significant influence in making them oligopolistic. The International Harvester Company, organized in 1902, merged the five leading makers of harvesting machines and thereby obtained a virtual monopoly in their manufacture. In 1903 International produced 92.4 per cent of all binders made in this country, 87.7 per cent of all mowers, and 80 per cent of all rakes. These are *harvesting machines.* They are also *agricultural implements.* By 1918 International had lost a lot of ground to its rivals, producing in that year only 65.3 per cent of the domestic output of binders, 59.5 per cent of the mowers, and 57.5 per cent of the output of rakes.[27] Moreover, by 1918 International had become a full-line company turning out the whole range of major agricultural implements, and its leading rivals had similarly broadened the scope of their operations. International's share of the farm implement business was far less than its share of harvesting machines. In short, oligopoly, not monopoly, characterized the farm implement business as early as 1918. Both internal growth and mergers had influenced this development. Under the 1918 dissolution decree International divested itself of three relatively unimportant lines of harvesting machinery, but this had little effect on the industry's basic structure. It accentuated but did not create oligopoly.

The Standard Oil Co. of New Jersey was dissolved following the Supreme Court's decision in 1911. The dissolution decree changed the ownership of thirty-three Standard Oil subsidiaries, but it did not immediately affect their control. The forces which by the middle of the 1920's had changed the structure of oil refining and marketing from monopoly to oligopoly were numerous and complex, but we would certainly have to look beyond the dissolution decree to segregate and analyze them. Neither Weston nor Markham does this.

The dissolution decrees following the Supreme Court's decision in the *American Tobacco* case of 1911 transformed a monopoly market into oligopoly, an event quite apart from the 1920 merger movement. And it is interesting that oligopoly immediately resulted in competition in the sale of cigarettes.[28] But the record and the court's

[27] Myron W. Watkins, *Industrial Combinations and Public Policy* (Houghton Mifflin, 1927), p. 128.

[28] William H. Nicholls, *Price Policies in the Cigarette Industry* (Vanderbilt University Press, 1951), pp. 45-57; George W. Stocking and Myron W. Watkins, *Monopoly and Free Enterprise* (Twentieth Century Fund, 1951), p. 140.

finding in the second *American Tobacco* case indicate that during the 1920's cigarette pricing, with Reynolds as the price leader, was noncompetitive—conforming, though somewhat loosely, to what might be termed the ideal Chamberlinian oligopolistic solution—that is, to monopoly pricing.

Glucose was sold by oligopolists during the 1920's, but not because of a dissolution decree. Under consent decrees entered in 1915 and in 1919, following antitrust litigation, the Corn Products Refining Co. had divested itself of its interest in Penick & Ford, Ltd., and in two obsolete glucose plants, two candy plants, and a starch plant. During the 1920's eleven companies sold corn products—starch and glucose. Only one of these, Penick & Ford, Ltd., stemmed from the dissolution, and several were organized long before the decrees. Available evidence indicates that the industry customarily collaborated through the Corn Derivatives Institute to restrict competition.[29] Weston's fifth illustration of oligopoly replacing monopoly as a result of court decisions or public pressure came long after the 1920's. It was not until 1945 that Judge Learned Hand delivered the Second Circuit Court of Appeals' opinion in *United States* v. *Aluminum Company of America*, and Alcoa has never been dissolved. Reynolds Metals and Kaiser's Permanente, as makers of aluminum ingots, were the offspring of World War II.

Nor are Weston's "oligopolies by merger" wholly 1920 products. Notable exceptions include ammunition, steel, rubber, whiskey distilleries (nonexistent during the Prohibition 1920's). In truth, I believe that Weston's study throws little if any light on Markham's problem—the effect of *the 1920 merger movement* on market structure and behavior.

Markham's third observation—that the 1920 mergers typically embraced a small proportion of the total firms in their industries, firms which had not previously competed with each other—may be correct; but his evidence does not wholly support his finding. National Dairy, for example, he classifies as of the "chain- and conglomerate-firm variety" and implies that its organization had little effect on the structure of the market in which it operated. Painstaking research would be required to explore this hypothesis fully. But easy-to-get information reveals that National Dairy acquired

[29] Government's petition filed April 6, 1932 against Corn Derivatives Institute and its fifteen corporate members (mimeographed; obtained from the Dept. of Justice, Antitrust Division). A consent decree was entered the same day. See *The Federal Antitrust Laws with Summary of Cases, 1890-1951* (1952 ed., Commerce Clearing House), Case 382.

the Kraft-Phoenix Cheese Co. in 1929, which represented a 1928 merger of the nation's two largest cheese producers, together selling about two-fifths of the cheese consumed in the country.[30] National Dairy did not consolidate the country's cows; but by merging rival dairies in local communities or by acquiring leading local milk distributors (many of which represented recent mergers), by 1930 it was selling from 18 to 81.5 per cent of the fluid milk sold in each of sixteen selected city markets.[31]

Markham says that mergers in the copper industry extended vertical integration. This is correct. It is also true that by buying out rivals, Anaconda, Kennicott, Phelps Dodge, and American Smelting and Refining increased their combined share of domestic copper-fabricating capacity from 20 per cent in 1920 to 80 per cent in 1940.

In chemicals, Markham concludes that mergers were mostly of the conglomerate firm type and offers Allied Chemical and Dye and Du Pont as examples. Unfortunately economists do not have a standardized definition of a conglomerate firm. Markham's classification of Allied Chemical and Dye as a merger of the conglomerate firm type is accurate in the sense that the merged companies had engaged in some noncompetitive activities and in that Allied Chemical produced a range of products far greater than that of any of its constituents. But if Allied Chemical were typical of the merger movement of the 1920's it would certainly be misleading to characterize the mergers of that period as primarily of the conglomerate type. Allied Chemical centralized control over five companies—General Chemical, Barrett, Solvay Process, Semet-Solvay, and National Aniline and Chemical. As early as 1910 there had been a community of interest among four of these, which apparently had as one of its objectives the lessening of competition. General Chemical, a merger of the early combination period, brought together in 1899 twelve of the country's makers of sulfuric acid. Barrett had for many years operated as an agent for the sale of by-product ammonia. In this way it had eliminated competition among by-product producers accounting for about four-fifths of the domestic output. It was also the country's leading purchaser of coal tar and its leading maker of coal tar products. Solvay Process was the sole domestic producer of ash under the Solvay process, but through Semet-Solvay it made and sold coke ovens and also produced coal tar and its deriva-

[30] See "Consolidated Cows," *Fortune*, May 1934, pp. 77-84, 170-178.

[31] See William H. Nicholls, *Imperfect Competition within Agricultural Industries* (Iowa State College Press, 1941), Table 10, p. 72.

tives. In 1910 General Chemical, Barrett, and the two Solvay companies organized Benzol Products Co. to make aniline oil. Before 1917 Semet-Solvay, General, and Barrett each produced dyestuffs. In that year they segregated their dyestuff business and merged it with the business of Benzol Products and with that of other important dyestuff makers to form National Aniline and Chemical Co. In 1919 National supplied more than half the domestic consumption of dyestuffs. Allied Chemical, organized in 1920, brought under a single management competitive and complementary branches of basic chemical manufactures and by doing so became the leading producer in several fields. In 1937, according to Wilcox, Allied produced ". . . some 28 per cent of the coal tar, 40 per cent of the aluminum sulfate, 45 per cent of the soda ash, 66 per cent of the ammonium sulfate and benzol, and all of the sodium nitrate made in the United States."[32]

The story of Du Pont is better known, particularly its rise to power in explosives. While its 1920 acquisitions may have been largely designed to round out its production of chemicals, its acquisitions were not wholly of noncompeting lines. In 1924 it acquired the General Explosives Co. and in 1927 the Excelsior Powder Manufacturing Co. In 1928 it acquired the assets of Grasselli Chemical Co., a rival producer of chemicals and explosives. But its merging of competitive rivals for the most part belongs to an earlier era. However, as late as 1917-1918, after it had acquired an important stock interest in General Motors, it acquired the paint and varnish business of Harrison Brothers and Co., Beckton Chemical Co., Cawley, Clark & Co., the Bridgeport Wood Finishing Co., Flint Varnish and Color Works, and the New England Oil, Paint and Varnish Co. These, of course, gave it no monopoly of the paint and varnish business, but only the earliest, if any, of these acquisitions can appropriately be characterized as of the conglomerate type.

Markham's fourth observation—that the 1920 merger movement was accompanied by a fairly steady decline in price levels, a remarkable increase in the national income, and a rising level of employment—is sound. Moreover, Markham wisely refrains from drawing any inferences from this except to point out that such prosperity has long been regarded as incompatible with monopoly. I am no expert on business cycles, but I believe that the experts would acknowledge that World War I engendered powerful inflationary

[32] Clair Wilcox, *Competition and Monopoly in American Industry*, Temporary National Economic Committee, Monograph 21, 1940, p. 201.

forces throughout the business world, forces which had not spent themselves with the short and severe 1920-1921 depression. Mergers during the 1920's, even though they may have changed market structure and behavior, certainly did not stop these expansive forces.

Prosperity brought a prolonged stock market boom; and, as Markham points out, this created an environment favorable to the flotation of securities on a scale essential to a large-scale merger movement. When the expansive forces had spent themselves, the stock market collapsed and the dismal decade of the 1930's followed. The ensuing economic environment was not conducive to a large merger movement, but it did encourage all sorts of output-restriction schemes, at first by law under National Industrial Recovery Administration, later by voluntary cooperation. I surmise that the 1920 merger movement with its reduction in the number of sellers facilitated this domestic cartel movement.

For his sixth observation—that except when the 1920 mergers were motivated by production and distribution economies they appear to have been largely influenced by the professional promoter—Markham relies largely on Thorp. This is good authority and I have no quarrel with it. But I believe that both Markham and Thorp may underestimate the influence on the movement of (1) the corporate quest for security through integration and (2) the introduction of new methods of merchandising. Both of these are complex phenomena and I can only touch on them.

1. By the 1920's, business generally had come to appreciate the advantages of integration. Some of these grew out of a shortening of processes or elimination of waste motions in a mechanical sense. Others relate to the increased financial security gained by control of supplies and market outlets from the raw material to the consumer in markets characterized by various sorts and degrees of imperfections. Integration in the oil industry illustrates both types. Without going into details, let me call attention to the fact that by 1930 nearly all the specialized subsidiaries of the dissolved units of the Standard Oil Company had become fully integrated concerns. Some had reached back to their crude oil supplies, others had reached forward to their product markets. Independent companies had experienced a similar development and, for the most part, integration had involved the acquisition of established enterprises.

2. By the 1920's, new methods of merchandising had encouraged an increase in the scale of operations. These new methods had two aspects: (a) mass distribution with low profit margins; (b) a differ-

entiation of product with increased reliance upon the press and the radio in selling. Mass distributors had to be large. To maximize the advantage of radio and periodical advertising it may be necessary to sell your product wherever people read or listen. Both these developments encouraged larger firms and hence mergers.

To call attention to these influences is not to deny the importance of the investment banker in the merger movement of the 1920's. But as previously indicated, his motives in both the earlier and the 1920 movement were frequently multiple.

THE 1940-1947 MERGER MOVEMENT

WHILE the literature of this movement is not so voluminous as that on the movement at the turn of the century, it has engendered as much heat. This heat has reached the point of incandescence and has shed some, but I think not enough, light. It seems fairly clear that the recent merger movement has not increased industrial concentration in the technical sense in which it is now being used, i.e. the proportion of assets, output, or employment in various industrial segments accounted for by a specified number of firms. It is also clear that internal expansion has overshadowed mergers as a source of individual growth during this period. But, as Markham points out, census data do not tell the whole story. Unless births in the business population of a particular and relatively narrow segment of industry exceed deaths through merger, the number of sellers in that segment declines. Census figures which revealed a decrease in concentration ratios might therefore conceal a trend toward industrial oligopoly. Unfortunately census data are frequently too general to tell us what is happening in particular markets. According to the *Survey of Current Business*[33] the number of firms in chemicals and allied products showed an increase from 7,400 to 9,800 between 1940 and 1947. Yet in 1947 the Smaller War Plants Corp. found that four or fewer companies accounted for the entire output of 102 products. The four leading producers accounted for 70 per cent of the output of 100 additional products.[34] These data indicate high concentration ratios, but tell us nothing about trends. I do not mean to imply that the 1940-1947 merger movement had anything to do with this. I merely point out that unless census figures are available

[33] Dept. of Commerce, May 1948, p. 15.

[34] *Economic Concentration and World War II*, Report of Smaller War Plants Corporation before Special Committee on Small Business, S. Doc. 206, 79th Cong., 2d Sess., 1946, pp. 183-192.

for narrow categories they do not tell us what is happening in "markets" as distinct from "industries." And even available data indicate that recent mergers have in fact increased concentration in some markets—liquor, for example.

Some of us who believe in free enterprise have been encouraged by the tremendous increase in the business population and by the spirit of business rivalry that has pervaded the entire economy since World War II. But some who point with pride to such statistics fail to recognize that the growth is differential. Without having the figures before me, I suspect that it is greatest in local service and distribution industries, least in basic manufactures. Moreover, while I hope that the spirit of business rivalry will endure, it has yet to meet a real test. Nearly everyone likes competition when consumers are long on dollars and short on goods, because nearly everyone prospers. Capitalistic enterprise with its heavy fixed charges flourishes in an expanding economy; it languishes in recession. This, I suspect, suggests the real significance of the business cycle to the spirit of enterprise. Live-and-let-live policies, although perhaps not mainly a product of depression, as Jacoby has insisted,[35] are greatly encouraged by it. They need not increase the number of mergers, and they often prove inadequate to prevent price competition. But given the proper environment, they grow like the green bay tree. Herein lies a dilemma of capitalism. Businessmen and some economists view with concern, if not alarm, high government expenditures, high taxes, unbalanced budgets, all of which have created the postwar environment in which business has flourished. Whether or not competition can survive without these luxuries is a matter of conjecture.

[35] Neil H. Jacoby, "Perspectives on Monopoly: A Rejoinder," *Journal of Political Economy*, June 1952, p. 258.